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CONTRIBUTIONS TOWARD A FLORA OF NEVADA

NO. 41

CHENOPODIACEAE OF NEVADA

by

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CHENOPODIACEAE OF NEVADA

By Clyde F. Reed*

Contribution Toward a Flora of Nevada, No. 41.

Herbs or shrubs, often scurfy or furfuraceous, mostly halophytic; leaves alternate or opposite, rarely leafless, glabrate to furfuraceous; flowers much reduced, small, usually greenish or gray, basically 5-merous, but often less, monoecious or dioecious, arrangment various; perianth of one whorl or absent; stamens opposite the perianth parts, usually the same number; gynoecium of a single one-celled ovary, usually superior with one ovule; styles and stigmas 2-3; fruit a utricle or an achene-like nut; seed with or without endosperm; embryo curved to spirally coiled.

Most frequently found in our area in dry, often saline or alkaline habitats, and exhibiting many striking modifications and adaptations to such habitats. Several cultivated plants such as the beet (Beta vulgaris) and spinach (Spinacia oleracea) are members of this family.

KEY TO GENERA

1. Leaves reduced to scales; stem thickened, fleshy, jointed.
   2. Scales and branches opposite; low herbs.....12. SALICORNIA
   2. Scales and branches alternate; shrubs.....11. ALLENROLFEA

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* Reed Herbarium, Baltimore, Md.

1. Leaves functional; stems not particularly fleshy, not jointed.

3. Leaves opposite, linear, fleshy; flowers perfect, with imbricate sepals.....1. NITROPHILA

3. Leaves scattered, alternate, rarely subopposite or opposite, if opposite, not linear and fleshy; flowers various, sepals not imbricate.

4. Leaves linear, terete or scarcely flattened, or if flattened, pungent.

5. Leaves pungent or strongly mucronate at apex.

6. Shrubs with leaves thick and fleshy, finger-shaped, with a very slender abrupt mucronate tip..16. HALOGETON

6. Herbs with slender, gradually tapering leaves which are pungent at least when mature.

7. Flowers in axils of reduced leaves, subtended by 2 pungent branchlets; plant puberulent to hispid, rarely glabrous; leaves usually less than 1 mm. wide; fruit included in horizontally winged calyx.

15. SALSOLA

7. Flowers in axils of single bracts without bractlets; plants glabrous; leaves 1-2 mm. wide; fruit exserted.

10. CORISPERMUM

5. Leaves obtuse or acute at apex.

8. Rigid, intricately branched, usually spinose shrubs; leaves tending to be larger toward apices; flowers unisexual, usually dioecious; fruit winged.

13. SARCOBATUS

8. Plant an herb, or if woody, branched chiefly near base, not spinose, herbaceous in upper parts; leaves narrower toward apices; flowers mostly perfect.

9. Flowers white- (rarely brownish-) woolly; calyx becoming winged in fruit.....8. KOCHIA

9. Flowers not woolly; calyx not winged in fruit. 14. SUAEDA

4. Leaves broad, or if linear, then strongly flattened or revolute and not pungent.

10. Plants noticeably pilose or tomentose at least about the flowers, not glandular.

11. Leaves dentate; plant glabrate in age; fruiting calyx horizontally winged.....3. CYCLOLOMA

11. Leaves entire; plant not glabrate; calyx not horizontally winged.

12. Leaves densely tomentose, revolute; plant tomentose; fruiting bracts conspicuously white-hairy, making inflorescences cottony in appearance.....7. EUROTIA

12. Leaves green, plane or nearly so; plant pilose; fruiting bracts none, fruiting calyx with hooked spines embedded in white hair.....9. BASSIA

10. Plants mealy, glandular, scurfy, lepidote, glabrous, rarely slightly pilose or stellate-pubescent.

13. Plants woody, even in upper parts.

14. Plants with staminate flowers.

15. Leaves terete or almost so, spatulate or

clavate; staminate flowers in spikes, without calyx.....13. SARCOBATUS

15. Leaves flattened, not especially fleshy; staminate flowers with calyx, usually glomerate.

16. Leaves green, slightly mealy only when young. 6. GRAYIA

16. Leaves gray, mealy, scurfy or lepidote. 5. ATRIPLEX

14. Plants with pistillate flowers or fruits, often with paired fruiting bracts.

17. Pistillate flowers with calyx, axillary, not between bracts; fruit strongly horizontally winged; leaves terete or almost so.....13. SARCOBATUS

17. Pistillate flowers without calyx, usually in terminal inflorescences, enclosed between two, often connate and sac-like bracts which enlarge in fruit; leaves flat.

18. Leaves green, somewhat mealy only when young; fruiting bracts united to form a membranous sac. 6. GRAYIA

18. Leaves gray, mealy or scurfy; bracts herbaceous to coriaceous or woody, usually not entirely united.....5. ATRIPLEX

13. Plants herbaceous or somewhat woody at base.

19. Flowers unisexual, pistillate flowers and fruits without calyx, enclosed between two vertical bracts.

5. ATRIPLEX

19. Flowers polygamous, ebracteate.

20. Sepal 1; stamen 1.....2. MONOLEPIS

20. Sepals 3-5, stamens 1-5.....4. CHENOPODIUM

1. NITROPHILA S. Wats., Bot. King's Expl. 297, 1871.

Perennial herb from horizontal rootstock, stems branched; leaves opposite, linear, semi-terete; flowers perfect, axillary, solitary or in threes; perianth 5-parted, segments chartaceous-membranous, strongly imbricate, white or pinkish to straw-colored; stamens included; styles filiform; stigmas 2, subulate; utricle included in perianth, pericarp membranous, free from seed; seed 1 mm. across, black, shining, margin rounded.

1. NITROPHILA OCCIDENTALIS (Nutt. ex Moq.) S. Wats., Bot. King's Expl. 297, 1871; Standl., N. Amer. Flora 21(1): 4. 1916 (Map 1)

Syn.: Banalia occidentalis Moq. in DC., Prodr. 13(2): 279. 1849; Halimocnemis occidentalis Nutt.; Moq. in DC., Prodr. 13(2): 279 (as syn.) 1849.

Glabrous herbs, stems erect or decumbent, 10-35 cm. long; leaves fleshy, mucronate, sessile, 1-4 cm. long; flowers sessile or short-pedicelled; fruit brown.

Range: Alkaline places. June-Aug. Oregon, Nevada, California.

Nevada: Clark, Elko, Humboldt, Lander, Lincoln, Nye and Washoe Cos.

Representative specimens: CLARK CO.: Nelson, T.H.Kearney

(NA-10952); ELKO CO.: Deeth, A.A.Heller 9031, (NES-9987, US-612211); Ruby Valley, near Cave Creek P.O., Heller 9480 (NES-9986, US-612-360); vic. of Nevada Industrial Schook, 5 mi. E. of Elko, Bassett Maguire & A.H.Holmgren 22168 (NA-291429); HUMBOLDT CO.: Battle Mt., June 15, 1882, M.E.Jones 3954 (US-222965, US-882936); Quinn River Crossing, David Griffiths & E.L.Morris 156 (US-402591): Jacimento Ranch, Quinn River Valley, Percy Train 487 (NA-71713); near Humboldt River, vic. Winnemucca, J.P.Hester 1284 (NA-289596); NYE CO.: Beattie, Heller 10430 (NES-13236); WASHOE CO.: Reno, June 8, 1897, M.E.Jones (US-359310); Steamboat Springs, P.B.Kennedy 1486 (NES-6429); N.F.Petersen 202 (NES-14636); Gerlach, E.O.Wooton (NA-195-235); 5 1/2 mi. SW of Reno, W.A.Archer 5848 (NA-154010, NA-92848); 5 1/2 mi. NNE of Steamboat Springs, T.C.Adams 90 (NA-79529); Reno Hot Springs, 11 mi. S of Reno, Archer 6391 (NA-71837).

2. MONOLEPIS Schrad., Ind. Sem. Hort. Goetting. (1830):4. 1830.

Syn.: Micromonolepis Ulbrich, in Engl. & Prantl. Pfanzenfam., ed. 2, 16C: 499. 1934 (no Latin descript.).

Low branching annuals; leaves alternate, fleshy; flowers small, polygamous or perfect, axillary or terminal, glomerate or solitary, without bracts; calyx of a single sepal, entire, persistent, bract-like; stamen 1, or lacking in pistillate flowers; styles 2, filiform; fruiting perianth not accrescent, exceeded by the utricle; seed vertical, flattened, dull black; endosperm copious, mealy.

KEY TO SPECIES

Leaf-blades hastately lobed; sepals acute.....M. NUTTALLIANA

Leaf-blades entire; sepals obtuse.

Flower-clusters 10-20 flowered, leaf-blades narrowly spatulate,

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The abbreviations for herbaria follow Index Herbariorum with the exception of NES - Nevada Agricultural Experiment Station.

5-15 mm. long.....M. SPATHULATA

Flower-clusters 1-5 flowered; leaf-blades oblong to obovate, 2-8 mm. long.....M. PUSILLA

1. MONOLEPIS NUTTALLIANA (Schultes) Greene, Fl. Franc. 168. 1891; Standl., N. Amer. Flora 21(1): 6. 1916. (Map 31)

Syn: Blitum chenopodioides Nutt., Gen. 1: 4. 1818 (non Lam., 1783); B. nuttallianum Schultes, in Roem. & Schult., Syst. Veg. Mant. 1: 65. 1822; Chenopodium trifidum Trev., Ind. Sem. Vratisl. 1829; Monolepis chenopodioides Moq., in DC., Prodr. 13(2): 86. 1849.

Stems decumbent or ascending, much-branched, 1-3 dm. tall, somewhat fleshy, rather mealy when young, becoming glabrate with age; leaves short-petioled or subsessile, lanceolate, 1-5 cm. long, with a pair of divergent lobes toward the base, sometimes a few teeth above, otherwise entire; sepal fleshy or coriaceous, oblanceolate or spatulate; pericarp or utricle evenly pitted at maturity, adherent to the seed; seed 1 mm. diam., dark-brown or black, the margin acute.

Range: Saline soils. May-Sept. Manitoba to Alberta, South to California, Sonora, Texas and Missouri; on ballast in Maine; Siberia; Patagonia.

Nevada: Douglas, Elko, Humboldt, Lander, Mineral, Washoe and White Pine Cos.

Representative specimens: DOUGLAS CO.: Genoa, June 5, 1897, M.E.Jones (US-359438); ELKO CO.: Parks Station, 25 mi. N. of Elko, A.E.Hitchcock 979 (US-692939); near Redpoint, R.L.Piemeisel 42-901

(NA-289938); Little Lakes Canyon, W. Stampede, Kennedy 600 (NES-2424); HUMBOLDT CO.: Quinn River Crossing, David Griffiths & E.L. Morris 128 (US-403582); 64.7 mi. E. of Golconda, J.C.Chamberlain 34-20 (NA-257561); LANDER CO.: vic. of Austin, A.E.Hitchcock 704 (US-692932); Carter's Big Creek, Toiyabe Range, Kennedy 4594 (US-692757); Birch Creek Meadow, 20 mi. from Austin, W.H.Henning 69 (NA-71934); MINERAL CO.: 5 mi. from mouth of Cory Creek, Wassuk Range, Archer 6913 (NA-71933); WASHOE CO.: Truckee Desert, May 1868, S.Watson 979* (US-67877); Reno, Aug. 2, 1894, F.H.Hillman (NES-2425); P.A.Lehenbauer (NA-44704); Archer 5320 (NA-71993); Archer 5323 (NA-71923); Five Mile House, Adams 6 (NA-78001); Hunter's Creek, 6-8 mi. SW. of Reno, Sierra Nevada Range, Archer 6088 (NA-71927); Hunter's Creek Road, 9-11 mi. SW. of Reno, Archer 6292 (NA-71904); Charles Sheldon Game Refuge, G.H.Greenway 45 (NA-79657); WHITE PINE CO.: Ely, A.E.Hitchcock 1239 (NH-692941).

2. MONOLEPIS SPATHULATA Gray, Proc. Amer. Acad. 7: 389. 1868; Standl., N. Amer. Flora 21(1): 7. 1916.

Plants much-branched from the base, the branches decumbent or ascending, 3-15 cm. long, glabrous, or the younger parts slightly farinose; leaf-blades narrowly spatulate, or the lower ones obovate, 5-15 mm. long, 1.5-5 mm. wide, rounded to acute at the apex, narrowed at the base into a short petiole, entire; flower-clusters sessile, 10-20 flowered; sepal spatulate, obtuse; pericarp minutely papillose, free from the seed; seed about 0.4 mm. in diameter, brown, shining. -Standl., l.c.: 7. 1916.

Range: Oregon and Idaho S-ward to N. Lower California, along the Sierra Nevada (Mono Pass, Calif. type loc.). No specimens

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*Sereno Watson numbers are not collector's numbers. The numbers which are sometimes designated as collector's numbers are the numbers assigned to a species in King's Bot. vol. 5. 1871, and a single number may refer to several collections from one or more States.

have been seen from Nevada, but the species may be expected in the westernmost parts of the State.

3. MONOLEPIS PUSILLA Torr.; S. Wats., Bot. King's Expl. 289. 1871; Standl., N. Amer. Flora 21(1): 7. 1916. (Map 31)

Syn.: Micromonolepis pusilla (Torr.) Ulbrich, in Engl. & Prantl, Pflanzenfam., ed. 2, 16C: 500. 1934.

Stems erect, dichotomously branched, 4-20 cm. tall, glabrous or slightly scurfy or mealy, often reddish throughout; leaves subsessile, oblong to obovate, or oblong-spatulate, entire, 5-15 mm. long, early deciduous; pericarp or utricle minutely papillose, adherent to the seed; seed 0.5 mm. diam., dull, the margins obtuse or acutish.

Range: Alkaline valleys. May-June. Wyoming and Colorado to Washington and California. Type loc.: alkaline valleys in Western Nevada.

Nevada: Elko. Humboldt, Lander and Washoe Cos.

Representative specimens: ELKO CO.: 12.4 mi. E. of Elko, Piemeisel 34-16 (NA-257558); near Redpoint, S. of Contact, Piemeisel 42-899 (NA-289937); HUMBOLDT CO.: McDermitt, Piemeisel 34-15 (NA-257553); 5 mi. S. of Sod House, Percy Train 127 (NA-71894); WASHOE CO.: Pyramid Lake region, F.C.Brown 74 (Reno-4564); 2.1 mi. NE. of Pyramid, A. Simontacchi 542 (NA-79527).

3. CYCLOLOMA Moq., Chen. Mon. Enum. 17. 1840

Diffusely branching annual herbs; leaves alternate, dentate, thin; flowers polygamous (perfect and pistillate), in paniculate spikes, without bracts; sepals 5, keeled, each developing at matur-

ity into a horizontal wing; stamens 5; styles 2 or 3, partially united; utricle deparessed, enclosed in the calyx; seed flat, horizontal; pericarp membranous, free from seed; endosperm mealy.

1. CYCLOLOMA ATRIPLICIFOLIUM (Spreng.) Coult., Mem. Torr. Bot. Cl. 5: 143. 1894. "winged pigweed"

Syn.: Salsola atriplicifolia Spreng., Bot. Gart. Hal. Nachtr. 1: 35. 1801; Kochia atriplicifolia Roth, Neue Beitr. 1: 177. 1802; Salsola platyphylla Michx., Fl. Bor. Amer. 1: 174. 1803

Stem erect or spreading, divaricately branched, 3-6 dm. tall, loosely and thinly woolly, more or less glabrate in age, except around the flowers; leaves sessile or short-petioled, lanceolate to ovate, coarsely sinuately dentate, acute at the apex, cuneate at the base; 2-7 cm. long; wing of calyx white-hyaline, irregularly lobed and toothed, 4-5 mm. diam., covering the utricle; seed flat and black.

Range: Weedy, often found in sandy fields. Manitoba to Indiana, S. to Arizona and Texas; adventive in E. United States and Europe.

Nevada: No specimens have been seen from the State, but this species is found in the states on both sides.

4. CHENOPODIUM L., Sp. Pl. 218. 1753; Standl., N. Amer. Flora 21(1): 9-13. 1916; Wahl. Bartonia 27: 1-46. 1952-53 (1954), for N. Amer. species.

Syn.: Botrys Nieuwl., Amer. Midl. Nat. 3: 274. 1914.

Annual herbs, usually with mealy-coated or glandular foliage, but sometimes glabrous; stems sometimes quite rough, nearly woody; leaves alternate, flat, varying from linear to ovate, hastate or lanceolate, the blade entire, toothed or lobed; flowers perfect, in axillary or terminal spikes or glomerules; perianth usually 5-parted, calyx-like, the sepals persistent, flat or keeled; stamens 1-5, the filaments filiform; ovary superior, usually depressed, 1-celled; styles 2-5, with the stigmas filiform or subulate; fruit an utricle, containing one horizontal or vertical seed; pericarp usually adherent to the seed, sometimes fleshy; embryo curved or annular, surrounded with mealy endosperm.

A weedy genus having almost world-wide distribution.

KEY TO SECTIONS

(Based upon Wahl. Bartonia 27: 6. 1952-53 (1954)).

1. Plants variously pubescent and glandular; flowers in dichotomous cymes.....Sec. I. BOTRYOIDES

1. Plants glabrous or farinose but not glandular or pubescent.

2. Seeds vertical or both vertical and horizontal; plants glabrous or farinose; perianth parts chiefly 3-parted (sometimes 4-5-parted in horizontal flowers which are terminal in the glomerules), the divisions entire or apiculate.

3. Flowers in discrete, dense, globose heads in the leaf axils or forming terminal, bracteate or ebracteate spikes; perianth parts in the upper heads sometimes red and becoming deliquescent with age; plants not farinose; seeds all ver-

tical, maturing uniformly in the glomerules.

Sec. II. EUBLITUM

3. Flowers in glomerules, these either separate or forming contracted spikes in the axils of the leaves or bracts or in small or large panicles; perianth parts membranaceous to coriaceous when young, becoming membranaceous with age, not deliquescent; terminal flowers of the glomerules with horizontal seeds, the lateral with vertical seeds, maturing successively from the former to the latter.

4. Perianth parts of flowers with vertical seeds 3-4, united nearly to the tip; stigmas chiefly 0.2-0.3 mm. long, usually ascending in a V.....Sec. III. DEGENIA

4. Perianth parts (usually 3) of flowers with vertical seeds free nearly to the base or some but not all in each flower united above the middle; stigmas barely exceeding 0.1 mm., horizontally spreading.....Sec. IV. PSEUDOBLITUM

2. Seeds horizontal, rarely with a few vertical; plants variously farinose; perianth 5-parted.....Sec. V. CHENOPODIA

Sec. I. BOTRYOIDES C.A.Meyer

1. CHENOPODIUM BOTRYS L., Sp. Pl. 219. 1753. (Map 11)

"jerusalem oak"

Stems erect, 1-6 dm. tall, widely branching, glandular-pubescent and viscid throughout; leaf-blades 1-5 cm. long, oblong or ovate, obtuse, truncate or cuneate at the base, sinuately pinnatifid, querciform; flower-clusters in small axillary cymes; seeds

horizontal or vertical, 0.8 mm. broad, adherent to the pericarp, the calyx not completely enclosing the achene.

Range: Native of Europe, Asia and Africa; adventive and naturalized in most parts of North America. June-Oct. Waste places, ditches, dry soils.

Nevada: Churchill, Douglas, Elko, Humboldt, Lander, Lincoln, Mineral, Ormsby, Storey and Washoe Cos.

Representative specimens: CHURCHILL CO.: Carson Sink region, Kennedy 1717 (NES-7968); DOUGLAS CO.: Messetch Farm, Carson Valley, Lehenbauer (RENO-11511); HUMBOLDT CO.: Santa Rosa Mts., Maguire & Holmgren 22526 (NA-291428); ELKO-LANDER CO.: Battle Mt., A.E.Hitchcock 578 (US-692913); LANDER CO.: near Austin, Hitchcock 728 (US-692933); 2-8 mi. E. of Austin, F.S.Goodner & W.H.Henning 1140 (NA-71953); LINCOLN CO.: Caliente, Trein 2439 (NA-71929); MINERAL CO.: 15 mi. N. of Hawthorne in Cottonwood Canyon, Henning 225 (NA-71916); mouth of Cory Creek, Wassuk Range, Archer 6840 (NA-71901); ORMSBY CO.: King's Cañon, C.F.Baker 1505 (US-419624); STOREY CO.: 1 mi. W. of Virginia City, R.A.Allen 504 (NA-71911); WASHOE CO.: near Reno, July to Sept. 1890, Hillman (US); Glendale, W. of Reno, Hillman (NES-13675); W. of Washoe, Petersen 463 (NES-14557); 2-4 mi. W. of Reno Hot Springs, Archer 5371 (NA-71924); 4 mi. N. of Reno, Archer 5775 (NA-71895); 10 mi. S. of Reno, J.Henrichs 375 (NA-71909).

Sec. II. EUBLITUM (Moq.) Aellen

Syn.: Blitum L., Sp. Pl. ed. 1: 4. 1753.

Annual fleshy herbs, with light-green, glabrous, toothed leaves; flowers small, green or reddish, aggregate in small axillary, head-like clusters, or the upper clusters forming an interrupted spike; calyx 2-5-lobed, becoming fleshy and bright red in fruit; stamens 1-5, mostly 2; ovary 1-celled; styles 2-5; stigmas slender; seed vertical, shining, separating from the pericarp; endosperm mealy.

KEY TO SPECIES

1. Terminal heads ebracteate; flowers maturing uniformly or from top of plant downward; sides of fruit convex.
   2. Leaves truncate to cordate-hastate at base, the margins usually strongly toothed; principal glomerules on well-developed plants usually 6-10 mm. diam.; stigmas chiefly 0.3-0.4 mm. long, flexuous.....2. C. CAPITATUM
   2. Leaves tapering or truncate-hastate at base, the margins somewhat toothed or entire; glomerules usually less than 6 mm. diam.; stigmas chiefly 0.1-0.2 mm. long, squarrose. 3. C. OVERI

1. Heads prominently bracteate throughout; flowers maturing from the base of the plant upward; sides of mature fruit more or less prominently flattened; leaves finely and sharply sinuate-dentate.....4. C. FOLIOSUM

2. CHENOPODIUM CAPITATUM (L.) Aschers., Fl. Brand. 1: 572. 1864.

(Map 15)

"strawberry-blite, Indian-paint"

Syn.: Blitum capitatum L., Sp. Pl. 4. 1753; Standl., N. Amer. Flora 21(1): 31. 1916; B. chenopodioides Lam., Encycl. 1: 431. 1785.

Stem simple or branched from the base, 3-6 dm. tall; leaves broadly triangular to lanceolate, 3-7 cm. long, the uppermost entire and thick; flowers in rather large clusters in the axils of the upper leaves and in a terminal spike.

Range: Wet ditches and places. May-Aug. Quebec to SE. Alaska, and S-ward to New Jersey, Minnesota, New Mexico and Oregon.

Nevada: Clark, Elko, Humboldt, Lander, Nye, Pershing and Washoe Cos.

Representative specimens: CLARK CO.: E. side of Lee Canyon, Charleston Mts., Train 2107 (NA-154016; NA-92735); ELKO CO.: Mountain City, Mill Creek, Aven Nelson & J.F.Macbride 2215 (US-693028; RM-75121); Martin Creek railroad station, J.H.Robertson 326 (NA-253777); HUMBOLDT CO.: Mountain Spring, Santa Rosa Range, Train 480 (NA-92716; NA-154015); NYE CO.: Toiyabe Forest, Bunker Hill, A.E.Hitchcock 880 (US-692937); WASHOE CO.: Fremont's Pass. Aug. 1868, S.Watson 976 (US-67875).

3. CHENOPODIUM OVERI Aellen, Fedde Rep. Spec. Nov. 26: 159. 1929.

Syn.: Blitum hastatum Rydb., Bull. Torr. Bot. Cl. 28: 273. 1901; Standl., N. Amer. Flora 21(1): 31. 1916. (Map 18)

Stem slender, 2-4 dm. tall; leaves very thin, 3-7 cm. long, ovate or ovate-lanceolate in outline, the upper ones smaller, not hastate; flowers in the upper axils and in a slender interrupted terminal spike. According to Wahl this taxon may not be separable specifically from C. capitatum.

Nevada: Clark and Pershing Cos. July-Sept.

Representative specimens: CLARK CO.: Charleston Mts. (Wahl, Bartonia, No. 27: 9. 1952-53. 1954); PERSHING CO.: above Thousand Springs Valley, East Humboldt Mts., Aug. 1868, Watson 977 (US-44593), cited by Rydberg.

4. CHENOPODIUM FOLIOSUM (Moench.) Aschers., Fl. Brand. 1: 572. 1864.

Syn.: Morocarpus foliosus Moench, Meth. 342. 1794: Blitum virgatum L., Sp. Pl. 4. 1753; Standl., N. Amer. Flora 21(1): 32. 1916; Chenopodium virgatum Jessen, Deuts. Exc. Fl. 300. 1879

(non Thunb., 1815). (Map 13)

Characters given in the key; usually more branched and smaller than C. capitatum; leaves lacerate-serrate to dentate, with smaller leaves extending to the summit of the stem and branches, greatly exceeding the small, globular glomerules; seed with an obtuse margin.

Nevada: MINERAL CO.: Depauperate form, spring, headwaters of Cory Creek, Wassuk Range, Sept. 11, 1938, Archer 7059 (NA-94824). A Mediterranean species introduced into America.

Sec. III. DEGENIA Aellen

Characterized especially by the vertical lateral flowers with 3 sepals united nearly to the tips. Represented with us by a single species.

5. CHENOPODIUM CHENOPODIOIDES (L.) Aellen var. DEGENIANUM (Aellen) Aellen, Amer. Midl. Nat. 30: 58. 1943. (Map 16)

Syn.: Chenopodium crassifolium Hornem., Hort. Hafn. 254. 1813; C. crassifolium var. degenianum Aellen, Magyar Bot. Lap. 25: 58. 1927.

Plants prostrate or low-branching; leaves glabrous or promptly glabrate beneath, deltoid, rhombic or spatulate, entire; free tips of sepals minutely but definitely apiculate.

Range: Saline habitats. Washington, Nevada, California, Wyoming, Colorado, New York. Wahl, Bartonia 27: 11. 1952-1953 (1954).

Nevada: ELKO CO.: Thousand Spring Valley, Watson 978 (as Blitum polymorphum C.A.Meyer var. humile Moq. in King's Bot. Expl. 5:

288. 1871), Sept. 1865 (US-43832; Wahl, l.c.: 11); NYE CO.: Monitor Valley, Maguire & Holmgren 25768, (Wahl, l.c.: 11).

Sec. IV. PSEUDOBLITUM Hook. f.

The perianth parts in this section are mostly free to the base, although there may be a varying degree of fusion. Represented in our region by two species.

6. CHENOPODIUM GLAUCUM var. SALINUM (Standl.) Boivin, Canad. Field-Nat. 65: 17. 1951. (Map 13)

Syn.: Chenopodium salinum Standl., N. Amer. Flora 21(1): 29. 1916; C. glaucum subsp. salinum (Standl.) Aellen, Fedde Repert. 26: 46. 1929.

Stems prostrate, decumbent or ascending, much branched, more or less fleshy; leaf-blades broadly lanceolate to triangular-ovate or oblong, acute, 2-3 cm. long, sinuately toothed and somewhat hastate; flowers in small axillary spikes, shorter than the leaves; sepals obovate, round at the apex; seeds finely tuberculate.

Range: Alkaline soil. July-Sept. Alberta and Manitoba to New Mexico and Arizona.

Nevada: ELKO CO.: Ruby Valley near Cave Creek P.O., Heller 9528 (NES-14641); WASHOE CO.: Coleman Valley, Aug. 29, 1896, Coville & Leiberg 111 (US-276104); Glendale, near Reno. Aug. 18, 1894. Hillman (NES-2385).

7. CHENOPODIUM HUMILE Hook., Fl. Bor. Amer. 2: 127. 1838; Standl.,

N. Amer. Flora 21(1): 29. 1916. (Map 15)

Syn.: Blitum polymorphum var. humile Moq., Chen. Enum. 46. 1840; B. rubrum var. humile Moq., in DC., Prodr. 13(2): 84. 1849. Chenopodium rubrum var. humile (Hook.) S. Wats., Bot. Calif. 2: 48. 1880; Botrys humilis (Hook.) Lunell, Amer. Midl. Nat. 4: 306. 1916.

Stems decumbent or spreading, divaricately branched; leaf-blades obovate, spatulate or lanceolate, the upper ones linear, 1-3 cm. long, fleshy, glabrous or nearly so; flower-clusters in small axillary spikes; sepals somewhat fleshy, oblong and obtuse; seeds less than 1 mm. broad, easily separating from the pericarp.

Range: Alkaline areas. June-Nov. Manitoba to British Columbia and California; on coast of Maine; ballast in New Jersey; also in Europe.

Nevada: Mineral and Washoe Cos.

Representative specimens: MINERAL CO.: E. of Yerington, N. Carlson & C.Holstein C-39 (NA-75460); WASHOE CO.: 3 mi. E. of Charles Sheldon Antelope Refuge, Bald Mt., Train 2996 (NA-183437); 9-11 mi. SW. of Reno, Sierra Nevada Range, Archer 6292 (RENO-4554); 6-8 mi. SW. of Reno, Archer 6088 (RENO-4557); streets, Reno, Archer 5323 (RENO-4558); Thomas Creek, Sierra Nevada Range, Archer 6579 (NA-71905).

Sec. V. CHENOPODIA (C.A.Meyer) Aellen

This section includes species with horizontal seed and a regularly 5-parted perianth. There is considerable variation in leaf shape, in seed size and in shape and rugosity of the pericarp. Wahl, l.c.: 14.

KEY TO SPECIES

1. Leaves all narrowly linear to linear, 1-nerved, entire.
   2. Plants densely farinose; seeds usually less than 1 mm. diam. 10. C. LEPTOPHYLLUM
   2. Plants almost wholly glabrous; leaves sparingly farinose below; seeds usually more than 1 mm. diam.....9. C. SUBGLABRUM
1. Leaves narrowly lanceolate to oblong, ovate or deltoid, 3-nerved on the lower ones, often toothed or lobed.
   3. Leaves narrowly lanceolate or narrowly oblong, somewhat lobed at the base.....8. C. PRAETERICOLA
   3. Leaves broadly lanceolate to as wide as long, margins toothed or lobed.
      4. Leaf-blades broadly ovate, 5-15 cm. long, with 1-3 large triangular, acute, remote teeth on each side, glabrous, often subcordate at base.....17. C. GIGANTOSPERMUM
      4. Leaf-blades variously shaped, margin entire or variously toothed or lobed, glabrous or farinose, seldom if ever subcordate at base.
         5. Leaves very wide, as broad or nearly as broad as long.
            6. Pericarp adherent to the seed; seed surface roughened; leaves 3-8 cm. long.....18. C. MURALE
            6. Pericarp free from the seed; seed surface smooth.
               7. Plants glabrous or sparingly farinose; leaves thin, often over 2.5 cm. long; plants slender, often over 25 cm. tall.....11. C. FREMONTII
               7. Plants densely farinose; leaves thick, seldom over 2.5

cm. long; plants diffusely branched from base, seldom over 25 cm. tall.....13. C. INCANUM

5. Leaves mostly 2 to 4 times longer than wide, not as broad as long.

8. Pericarp free from seed.

9. Plants definitely farinose, on lower leaf surfaces at least.....14. C. ALBESCENS

9. Plants glabrous or very sparingly farinose on the lower surface of leaf.....12. C. ATROVIRENS

8. Pericarp adherent to seed.

10. Perianth lobes not carinate.

11. Leaves thin, ovate, sometimes narrowly so, up to 3.5 cm. long; plants upright, small and strict or tall and variously branched; seeds 1.2-1.5 mm. broad.....15. C. INCOGNITUM

11. Leaves firm, ovate or deltoid, the largest less than 2 cm. long; plants low, bushy-branched; seeds 0.7-0.8 mm. broad.....16. C. NEVADENSE

10. Perianth lobes definitely carinate; seeds smooth and shiny.....19. C. ALBUM

8. CHENOPODIUM PRATERICOLA Rydb., Bull. Torr. Bot. Cl. 39: 310. 1912; Wahl, Bartonia 27: 18. 1952-53 (1954).

Two varieties have been recognized from our area.

Leaves lanceolate to ovate-lanceolate, lobed or unhooked; sepals relatively yellowish, acute and ascending, less prominently

keeled; plants erect, often strict.....var. PRATERICOLA
Leaves chiefly oblong-elliptic, usually of thicker texture, unlobed; sepals relatively greenish, obtuse, more definitely curving inward over the fruit and more prominently keeled; plants upright-spreading to low and diffuse.....var. OBLONGIFOLIUM

8a. CHENOPODIUM PRATERICOLA var. PRATERICOLA Rydb., Bull. Torr. Bot. Cl. 39: 310. 1912.

Syn.: Chenopodium leptophyllum S.Wats., Proc. Amer. Acad. 9: 94 (in part.). 1874 (non C. leptophyllum Nutt., 1874); C. petiolare var. leptophylloides Murr. in Bull. Herb. Boiss., 2 ser., 4: 994. 1904; Botrys pratericola Lunell, Amer. Midl. Nat. 4: 306. 1916; Chenopodium pratericola var. leptophylloides (Murr.) Aellen, Fedde Repert. Sp. Nov. 26: 64. 1929 (as to western broad-leaved plants); C. pratericola var. thellungianum Aellen, in Ostenia 1933, p. 100.

Leaves moderately thin to almost fleshy in testure, oblong to lanceolate or ovate-lanceolate, entire, 3-nerved or occasionally pinnately veined; plants upright to low or spreading; seed maturing nearly uniformly in the cymes; sepals largely covering the fruit at maturity, at least laterally. Wahl (l.c.: 18) states that this species is found in "all the States west of the Mississippi River."

Nevada: WASHOE CO.: W. of Reno, Aug. 9, 1894, Hillman (NES-2387).

8b. CHENOPODIUM PRATERICOLA var. OBLONGIFOLIUM (S.Wats.) Wahl, Bartonia 27: 19. 1952-53 (1954).

Syn.: Chenopodium leptophyllum var. oblongifolium S.Wats., Proc. Amer. Acad. 9: 95. 1874; C. desiccatum Nels., Bot. Gaz. 34: 362. 1902; Standl., N. Amer. Flora 21(1): 15. 1916; C. oblongifolium Rydb., Bull. Torr. Cl. 33: 137. 1906; C. praterícola ssp. desiccatum (Nels.) Aellen, Fedde Repert. Sp. Nov. 26: 136. 1929.

A montane variation, erect annual, 1-4 dm. tall, usually more spreading, with the tendency to have thicker, more oblong leaves; the branches often tinged with red; flowers in rather large, dense glomerules crowded to form short, stout, paniculate spikes; calyx densely and coarsely farinose, the sepals more obtuse, greener and more strongly keeled than in the typical variety, completely enclosing the fruit; pericarp free; seed horizontal, 1 mm. broad, nearly smooth, dark reddish-brown, shining, the margin obtuse.

Range: Dry soil. Idaho to South Dakota, Kansas, New Mexico and SE. California.

Nevada: ELKO CO.: Little Lakes Canyon, near Stampede, June 27, 1902, Kennedy 540 (NES-2388; RM-39607).

9. CHENOPODIUM SUBGLABRUM (Wats.) Nels., Bot. Gaz. 34: 362. 1902; Standl., N. Amer. Flora 21(1): 14. 1916.

Syn.: Chenopodium leptophyllum var. subglabrum S.Wats., Proc. Amer. Acad. 9: 95. 1874; Botrys subglabra Lunell, Amer. Midl. Nat. 4: 306. 1916.

Stem 2-4 dm. tall, branched, striate, obtusely angled; leaves 1-veined, 2-10 cm. long, 1-3 mm. wide, entire and light green; entire plant almost entirely glabrous; glomerules 1-4 flowered in lax spikes; seed black, shining, about 1.5 mm. diam.; only known linear-leaved species with the separable pericarp.

Range: Sandy places, often on sand bars in rivers. May-Aug. E. Washington and Oregon to Montana and central Nebraska, S. to Nevada.

Nevada: CLARK CO.: Las Vegas, L.N.Goodding 2330 (RM-65195).

Originally described as a variety of C. leptophyllum, from which it differs by its glabrate herbage and the larger seeds, which are 1.5 mm. broad. Also it is more northern in its distribution.

10. CHENOPODIUM LEPTOPHYLLUM (Moq.) Nutt. ex Wats., Proc. Amer. Acad. 9: 94. 1874; Standl., N. Amer. Flora 21(1): 14. 1916; Wahl, Bartonia 27: 23-24. 1952-53 (1954); cited as Nutt. in Moq., in DC. Prodr. 13(2): 71. 1879. (Map 14)

Syn.: Chenopodium album var. leptophyllum Moq., in DC., Prodr. 13(2): 71. 1849; Botrys leptophyllum Nieuwl., Amer. Midl. Nat. 3: 275. 1914; Chenopodium inamoenum Standl., N. Amer. Flora 21(1): 15. 1916 (as to description and plants considered, but not as to type).

Stems erect, green or reddish, 1.8 dm. tall, much-branched, striately angled, branches dense farinose, or becoming glabrate; leaves 1.6 cm. long, 1.6 mm. wide, densely white farinose, becom-

ing glabrate above, petioles very short, obtuse, thick, 1-nerved; flowers in large glomerules in dense, erect, paniculate spikes; calyx densely farinose, slightly to strongly carinate, scarcely covering the seed; seed 0.8-1 mm. broad, black, shining, with the pericarp firmly attached.

Range: Dry places, canyons, slopes. June-Sept. Manitoba and Alberta, S-ward to Mexico (Sonora and Chihuahua) and California; adventive E-ward; on sandy beaches, Maine to New Jersey; adventive in Europe.

Nevada: Elko, Esmeralda, Humboldt, Lander, Lincoln, Lyon, Mineral, Nye, Washoe and White Pine Cos.

Representative specimens: ELKO CO.: 3 mi. S. of Hubbard C.C. C. Camp, A.H.Holmgren 1584 (cited by Wahl, l.c.: 24); Ruby Valley near Cave Creek P.O., Heller 9535 (NES-9867); ESMERALDA CO.: Indian Creek, White Mts., Archer 7227 (NY.; DAO; NA-92754); HUMBOLDT CO.: Rebel Creek, W. side of Santa Rosa Range, Train 377 (NA-92729); LANDER CO.: Buzanes, about 25 mi. N. of Ione, Goodner & Henning 688 (NA-92753 and 154019); LINCOLN CO.: Deer Lodge, Desma Hall (RENO-4560); LYON CO.: Flats in greenhouse, 5.7 mi. NE. of Fernley, W.D.Billings 1500 (RENO-6173); MINERAL CO.: Cory Creek, Wassuk Mts., Ivar Tidestrom 10076 (US-1117329); NYE CO.: 2-9 mi. E. of Manhattan, Henning 166 (NA-92752); WASHOE CO.: Truckee Valley, July 1867, W.W.Bailey 972 (US-43822); Reno, A.E.Hitchcock 515 (US-692909); Tahoe Nat. Forest, Galena Creek, 8 mi. W. of Reno Hot Springs, Archer 5456 (NA-92731 and 154022); along Galena Creek, 16 mi. W. of Reno Hot Springs, Archer 5808 (NA-94835); 2-7 mi. N. of Wadsworth, Archer 6215 (NA-92728 and 154021); WHITE PINE CO.: Ely, A.E.Hitchcock 1237 (US-692940).

11. CHENOPODIUM FREMONTII S. Wats., Bot. King's Expl. 287. 1871;

Standl., N. Amer. Flora 21(1): 18. 1916; Wahl, Bartonia 27: 24-25. 1952-53 (1954). (Map 12)

Syn.: Botrys fremontii Lunell, Amer. Midl. Nat. 4: 305. 1916; Chenopodium fremontii var. fremontii Fosberg, Amer. Midl. Nat. 26: 691. 1941.

Stem 2-8 dm. tall, with slender branches, green; leaf-blades broadly triangular to rhombic, sinuate-dentate, 1.5 cm. long and nearly as wide, rounded and mucronate at the apex, the base with a prominent hastate lobe; sepals strongly carinate, nearly covering the fruit; seed black, shining, fully 1 mm. broad (1.1-1.5 mm.).

Although this and the following two species have been treated as being of varietal status under C. fremontii, Wahl states the reasons for their remaining separate species. "The recognition of C. incognitum removes the apparent continuity between fremontii and atrovirens---."

Range: Canyons and bushy areas. May-Sept. North Dakota to W. Texas, N. Mexico, Nevada and British Columbia.

Nevada: Clark, Elko, Lander, Lincoln, Lyon, Mineral, Nye, Pershing, Storey, Washoe and White Pine Cos.

Representative specimens: CLARK CO.: Kyle Canyon, I.W.Clokey 7913 (NA-100264); ELKO CO.: Little Lakes Canyon, W. Stampede, P.B. Kennedy 540a (NES-2389); LANDER CO.: Austin, A.E.Hitchcock 659 (US-692931); 22-23 mi. S. of Battle Mt., Goodner & Henning 1041 (NA-154017 and 92726); LINCOLN CO.: Panaca area near Plot No. 4, R.D. Hermansen 215 H, (NA-75450); 4 mi. N. of Caliente, Train 2474 (NA-154057 and 92751); 11 mi. SSW. of Caliente in Kershaw Canyon, I. LaRivers & N.F.Hancock 685 (NA-71986); LYON CO.: SW. of Yerington, Ed.Koch, C.Holstein & N.Carlson N-65 (NA-75461); MINERAL CO.: 15-17 mi. N. of Hawthorne in Cottonwood Canyon, Henning 259 (NA-92750); PERSHING CO.: East Humboldt Mts., July 1868, Watson 973 (TYPE), (US-43941); STOREY CO.: 2 1/2 mi. N. of Virginia City, Allen 493 (NA-92749); WASHOE CO.: Winnemucca Lake, Kennedy 1993 (NES-14418; RM

76219); Truckee Meadows, Lehenbauer (NA-85659); WHITE PINE CO.: Ely, A.E.Hitchcock 1247 (US-692945). Also Nevada, 1872. Lt. Wheeler (US-43942).

12. CHENOPODIUM ATROVIRENS Rydb., Mem. N.Y. Bot. Gard. 1: 131. 1900; Wahl, Bartonia 27: 25. 1952-53 (1954). (Map 12)

Syn.: Chenopodium fremontii var. atrovirens (Rydb.) Fosberg, Amer. Midl. Nat. 26: 691. 1941.

Stem 3-5 dm. tall, striate and obtusely angled; leaf-blades broadly ovate, 1.5 cm. broad or less, 1.3 cm. long, 3-nerved, only occasionally with a basal lobe; flowers in short, dense spikes, sparingly farinose; seeds black, shining, chiefly 1.0-1.3 mm. broad. This species can be distinguished from C. fremontii in its different leaf shape, its generally firmer texture and its lighter, smaller seeds. A montane species which is quite variable.

Range: Canyons and hillsides. May-Aug. Montana to E. Oregon, Colorado, Nevada and California.

Nevada: Clark, Douglas, Elko, Humboldt, Lander, Lincoln, Nye and Washoe Cos.

Representative specimens: CLARK CO.: Boulder City, in hedgerow along lawn, Gullion 398 (NA-302506); Lee Canyon, Clokey (NA-81995); Lee Canyon, Clokey (NA-81925); ELKO CO.: S. of Contact, betwe. Redpoint and Summit. Piemeisel 41-7 (NA-257559); HUMBOLDT CO.: McDermitt, Piemeisel 34-8 (NA-257552); LINCOLN CO.: Deer Lodge, Pinyon Mt., D.H.Galway 8251 (US-1826921); and Desma Hall (NA-43115 and RENO-4544); NYE CO.: Big Creek and Kingston Canyon, Toiyabe Forest, A.E.Hitchcock 832 (US-692934); 3 mi. above Trout Creek Ranch, Goodner & Henning 1236 (NA-94842 and 94822); WASHOE CO.: 2-4 mi. W. of Reno Hot Springs, Archer 5373 (NA-94820); Galena Creek, Sierra Nevada Range, 6 mi. W. of Reno Hot Springs, Archer 5409 (NA-94829).

12a. CHENOPODIUM ARIDUM Nels., Bull. Torr. Bot. Cl. 31: 240. 1904.

Syn.: Chenopodium wolfii Rydb., Bull. Torr. Bot. Cl. 30: 248. 1903; (C. olidum Wats., in part.)

Stem erect, 3-4 dm. tall; leaves moderately thick and dark green, slightly farinose; leaf-blades 1-3 cm. long, oblong to ovate-lanceolate, entire or rarely slightly hastately toothed, obtuse; seeds scarcely 1 mm. diam., black, shining. Wahl (l.c.: 25) states that "some of the variations within the species (C. atrovirens) might be resolved if the smaller, stouter plants with more densely spicate inflorescences could be segregated. They may form a connecting link between this and C. hians."

Nevada: Arid places. June-Aug. MINERAL CO.: Rhodes, June 22, 1882, M.E.Jones (RM-157257).

13. CHENOPODIUM INCANUM (S.Wats.) Heller, Pl. World 1: 23. 1897; Standl., N. Amer. Flora 21(1): 18. 1916. (Map 12)

Syn.: Chenopodium fremontii var. incanum S.Wats., Proc. Amer. Acad. 9: 94. 1874.

Plants profusely branched, low and bushy, 1-3 dm. tall, farinose, with stems obtusely angled; leaves membranaceous to coriaceous, less than 1.5 cm. wide, 1.2 cm. long, rhombic or broadly ovate, hastately lobed, 3-nerved; inflorescence in dense clusters; sepals very farinose, slightly carinate; seeds black, shining, 0.9-1.1 mm. broad, maturing relatively uniformly and covered by the sepals at maturity. This species is characterized by its low bushy habit, the small, thick leaves, and the prominent, often

sharp, lobe on either side above the base.

Range: Dry places, sandy wastes. May-Aug. Nebraska to Utah and Nevada, south to northern Mexico; adventive in Missouri and Maine.

Nevada: Clark, Lincoln, Lyon, Mineral and Washoe Cos.

Representative specimens: CLARK CO.: Stump Springs, 20 mi. NW. of Ripley, LaRivers & Hancock 368 (NA-154018 and 92734); 6 mi. NE. of Charleston Peak, Spring Mts., LaRivers & Hancock 464 (NA-94893); LINCOLN CO.: 1 1/2 mi. W. of Crystal Springs area, Hermansen 224 H (NA-75418); LYON CO.: Petrified Forest in Wilson Canyon, Lehenbauer 178 (NA-94891); MINERAL CO.: Cory Canyon, Wassuk Mts. Tidestrom 10081 (US-1117331); mouth of Cory Creek, Wassuk Range, Archer 6820 (NA-92732); WASHOE CO.: 2-7 mi. N. of Wadsworth, Archer 6216 (NA-92733).

14. CHENOPODIUM ALBESCENS Small, Fl. SE. United States, p. 385, 1330. 1903: Standl., N. Amer. Flora 21(1): 17. 1916.

Stem erect, 5-12 dm. tall, farinose when young, angled; leaves 2-4 cm. long, moderately thin, sharply acute or bristle-tipped, hastately lobed or toothed, 3-nerved; inflorescence lax; sepals farinose, barely keeled; seed 1.0-1.5 mm. broad, black, shining, the pericarp thin and strongly separable.

Range: Dry soil. July-Aug. W. Kansas to W. Texas and Nevada.

Nevada: LANDER CO.: 22-23 mi. S. of Battle Mt., Goodner & Henning 1040 (NA-94821; NY), cited by Wahl., l.c.: 26. (Specimen looks like other Ch. atrovirens).

15. CHENOPODIUM INCOGNITUM Wahl, Bartonia 27: 26. 1952-53 (1954).

Plants upright, 3-12 dm. tall, branched from the base, the branched arcuate-ascending; leaf-blades thin, ovate to deltoid-

ovate, 1.5-3.5 cm. long, unlobed or with small basal lobes, farinose beneath; flowers crowded in terminal and axillary, glomerate spikes; sepals 5, farinose, narrowly keeled, about half covering the fruit at maturity; pericarp finely rugose, attached to the seed; seed black, flattened, 1.2-1.5 mm. diam., the margin rounded.

Specimens are known from Wyoming, Colorado, Utah, New Mexico, Oregon and California. For this reason, it is included here in order to place material from Nevada which might agree in characters.

16. CHENOPODIUM NEVADENSE Standl., N. Amer. Flora 21(1): 16-17. 1916; Fosberg, Amer. Midl. Nat. 26: 691-693, illus. 1941; Wahl, Bartonia 27: 27. 1952-53 (1954). (Map 18)

Erect annual, 2.5-3 dm. tall, bushy-branched, the branches subdichotomous, ascending, stout below, slender and flexuous above, bright-green, slightly striate; leaves firm, ovate or deltoid, the largest less than 2 cm. long, petioled, obtuse or rounded at the apex, not cuspidate, narrowly or broadly cuneate at the base, entire or obscurely hastate, the lobes spreading, thick and fleshy, bright-green, very obscurely farinose, even when young, the upper blades little reduced but narrower, mostly oblong; glomerules of flowers very small, loosely cymose-paniculate, the branches dichotomous or subgeniculate; calyx rather copiously and closely farinose, the lobes oval or ovate, acute or obtuse, slightly carinate, completely enclosing the fruit; pericarp closely adherent; seed 0.5-0.8 mm. broad, the margin obtuse.

Range: Alkaline, sandy soils. June-Aug. Known only from

Nevada. TYPE locality: Winnemucca Lake, June 3, 1913, Kennedy 1993, (US-692766); Churchill, Esmeralda, Lander, Lyon, Mineral, Nye, Washoe Cos.

Representative specimens: CHURCHILL CO.: 7 mi. E. of Frenchman Station, J.Howell 8000 (US-1678266); ESMERALDA CO.: near Sodaville, Tidestrom 10057 (US-1117326); LANDER CO.: 18 mi. S. of Austin, Henning 80 (NA-94807); 35 mi. S. of Austin, Henning 98 (NA-94808); LYON CO.: Petrified Forest in Wilson Canyon, Lehenbauer 177 (NA-92718) and 184 (NA-92719); MINERAL CO.: about 50 mi. W. of Tonopah, Henning 231 (NA-94826); 3 mi. S. of Hawthorne, near mouth of Cory Creek, Archer 6817 (NA-92717); NYE CO.: along Cloverdale-Tonopah Road, S. of Cloverdale, Goodner & Henning 741 (NA-94809); 3-12 mi. S. of Darrough's Hot Springs, Goodner & Henning 1187 (NA-94833); 20 mi. N. of Tonopah, road to Cloverdale, Henning 188 (NA-94818); Smoky Valley, July 1868, Watson 973 (US-26228); Smoky Valley, Maguire & Holmgren 25359 (NY; PH; NA-289667); WASHOE CO.: Winnemucca Lake, Kennedy 1993 (US-692766-TYPE loc.).

17. CHENOPODIUM GIGANTOSPERMUM Aellen, Fedde Repert. 26: 144. 1929; Wahl, Bartonia 27: 30. 1952-53 (1954). (Map 13)

Syn.: Chenopodium gigantospermum var. standleyanum Aellen, Fedde Repert. 26: 147. 1929; C. hybridum var. gigantospermum (Aellen) Rouleau, Nat. Canada LXXI. 268. 1944; C. hybridum Amer. auth.

Stems erect, 6-13 dm. tall; leaf-blades rhombic-ovate or triangular-ovate, long-acuminate, sharply sinuate-dentate, with 1-4 large teeth on each side, or the uppermost entire; flowers in large open panicles; sepals oblong, slightly keeled; seeds firmly attached to the pericarp, acute margined, punctate, about 2 mm. diam.

Range: Waste places. June-Aug. Widely distributed in North America, except in the SE. States, more abundant N-ward.

Nevada: HUMBOLDT CO.: Alder Creek Ranch, Griffiths & Morris

383 (US-402640); WHITE PINE CO.: Ely, A.E.Hitchcock 1246 (US-692944).

18. CHENOPODIUM MURALE L., Sp. Pl. 219. 1753; Standl., N. Amer. Flora 21(1): 12. 1916. (Map 17)

"sowbane; nettle-leaf goosefoot"

Stems erect or decumbent, up to 6 dm. long, widely branching; leaf-blades thin, rhombic-ovate, 2-8 cm. long, acute, coarsely sinuate-dentate, cuneate or truncate at the base, glabrate; flower-clusters shorter than the leaves, panicles mostly axillary; sepals oblong, obtuse; seeds firmly adherent to the pericarp, sharp-angled.

Range: Sandy wastes and draws. Grown by Indians as food; may be ground or parched (called ku-ha). March-Oct. Native of Europe, Asia and Africa; widely adventive and established nearly throughout North America.

Nevada: Clark, Elko, Lincoln and Mineral Cos.

Representative specimens: ELKO CO.: near Owyhee, June 13, 1937, E.V.A.Murphey 215 (NA-74804); LINCOLN CO.: Panaca area, Plot No. 4, Hermansen 216H (NA-75451); MINERAL CO.: Hawthorne, Archer 7279 (NA-154023 and 92756); 30 mi. S. of Schruz, Dutch Creek, Murphey 48 (NA-220475); CLARK CO.: St. Thomas, Tidestrom 8640 (US-1221032); Davis Dam Rancho. 1 mi. S. Davis Dam, Gullion 193 (NA-302515).

19. CHENOPODIUM ALBUM L., Sp. Pl. 219. 1753; Standl., N. Amer. Flora 21(1): 23. 1916; Wahl, Bartonia 27: 33. 1952-53 (1954). (Map 10)

A world-wide weed, probably of Old World origin. The specimens studied from Nevada have been referred to many species by var-

ious authors. However, the material from Nevada seems to be one variable species, and the various names that have been applied to parts of it may be considered to be either synonyms or misapplications. Aellen has stated that most of the American material identified to C. album actually belongs to C. berlanderi ssp. zschackei, and much of this material has been annotated so in our herbaria. However, Wahl feels that this material is not entirely correct and that further study is necessary before the true relationships of the many (34 according to Abrams) related species, subspecies, varieties and forms be understood. Therefore, C. album will be considered in its widest sense for the specimens at hand from Nevada.

Stem erect, 6-30 dm. tall; leaves ovate or lanceolate, more or less rhombic, length of blades 1 1/2 or more times the width, 2-8 cm. long, acute or obtuse, usually hastately lobed; inflorescence dense; sepals not united to broadest part of fruit, usually strongly keeled, with light margins, enclosing the fruit; seed black, shining, 1.1-1.5 mm. broad.

Range: Waste places. April-Sept. Native of Europe, Asia and N. Africa; adventive throughout North America.

Nevada: Churchill, Clark, Douglas, Elko, Humboldt, Lander, Lincoln, Lyon, Nye, Washoe and White Pine Cos.

Representative specimens: CHURCHILL CO.: U.S.Field Station, Fallon, C.L.Moon (RENO-17644); 1 1/2 mi. NW. of Fallon, Allen 304 (NA-94900); near Whitman Ranch, vic. East Gate, Allen 344 (NA-94837); CLARK CO.: Las Vegas Valley, 3 mi. E. Las Vegas, Gullion 381 (NA-302507); Las Vegas, Tidestrom 9067 (US-1221047); DOUGLAS CO.: near Glenbrook along Lake Tahoe, Tidestrom 10382 (US-1221121); ELKO CO.: Star Valley, Billings 1515 (RENO-4539); Battle Mt., A.E. Hitchcock 648 (US-692929), 591 (US-692918); HUMBOLDT CO.: Winnemucca, Griffiths & Morris 79 (US-402564); Leonard Creek Ranch, Grif-

fiths & Morris 350 (US-402675); Paradise Hill, Griffiths & Morris 115 (US-402574); about 10 mi. N. of Canyon Creek Summit, Santa Rosa Range, Train 495 (NA-94840); LANDER CO.: mouth of Birch Creek Canyon, 14 mi. from Austin, Henning 75 (NA-94795); LINCOLN CO.: 11 mi. SSW. of Caliente in Kershaw Canyon, LaRivers & Hancock 685a (NA-72000); LYON CO.: 3 mi. S. of Nev. No. 3 of Friedhoff property, Yerington, D.J.Vanderwal 261 (NA-236874); NYE CO.: 3-12 mi. S. of Darrough's Hot Springs, Goodner & Henning 1185 (NA-94819); WASHOE CO.: Truckee Valley, Aug. 1867, Bailey 969 (US); Reno, on University grounds, Aug. 5, 1893, Hillman (NES-2383); vic. of Reno, A.E. Hitchcock 434 (US-692907); Lewer's Ranch, near Franktown, Lehenbauer (NA-44673); near Wadsworth, Lehenbauer & Miller 1510, (RENO-4543); about 6 mi. S. of Reno, Loretta R. Miller 104 (NA-94898); 4 mi. N. of Reno, Archer 5790a (NA-94886); lawn, Univ. of Nevada, Archer 5705 (NA-94899); streets, Reno, Archer 5794 (NA-94895); WHITE PINE CO.: 7 mi. east of Ely, A.E.Hitchcock 1263 (US-692946); Steptoe Creek, Shell Creek Range, Train 1014 (NA-94823). Also: near Brooks and Peckham Ranch, Lehenbauer 1308 (RENO-4540).

5. ATRIPLEX L., Sp. Pl. 1052. 1753.

Syn.: Obione Gaertn., Fruct. 2: 198. 1791.

Herbs and shrubs, annuals and perennials; usually mealy or scurfy with bran-like scales, furfruaceous; leaves alternate or opposite; flowers nonoecious or dioecious, in axillary clusters, or in simple or panicled spikes; staminate flowers with a regular 4- or 5-parted calyx, the pistillate flowers consisting of a pistil enclosed between a pair of appressed foliaceous bracts, without a calyx; styles 2; bracts either free or united, much enlarged in the fruit, the margin usually becoming more or less variously appendaged.

KEY TO SPECIES

1. Plants perennial shrubs, or at least definitely woody at base; dioecious, rarely monoecious; leaves entire or slightly undu-

late-margined, never hastate at base.

2. Bracts of pistillate flowers broadly 4-winged.

3. Leaves linear-oblong to spatulate, 4-10 mm. wide; sinus at the apex of the fruit narrow; free portion of the bract one-half to three-fourths as long as the width of the wing.

1. A. CANESCENS

3. Leaves very narrow, linear, 2-5 mm. wide; sinus of the strongly reticulate bract broad; free portion of the bract less than half as long as width of the wing.

2. A. TETRAPTERA

2. Bracts of pistillate flowers never with 4 conspicuous wings, irregular, flattened appendages may be present.

4. Plants spiny, the spines of sharp-pointed twigs; woody throughout; pistillate bracts with smooth faces.

5. Leaves sessile or nearly so, orbicular-ovate to elliptic, or cordate.

6. Fruiting bracts 1-3 mm. long, fan-shaped, the free margin short with a few low teeth; leaves cordate.

3. A. PARRYI

6. Fruiting bracts broadly ovate or suborbicular, about 1 cm. broad, united at base over seed, margin entire; leaves not cordate.....4. A. CONFERTIFOLIA

5. Leaves petiolate, at least the lower ones, triangular to ovate or oblong.....5. A. TORREYI

4. Plants not spiny; woody usually at base only; pistillate bracts with toothed margins or appendaged faces, or both.

7. Bracts with entire or merely wavy (rarely slightly denticulate) margins, without appendages on the back.

8. Bracts small, 3-4 mm. long, longitudinally veined; leaves ovate or triangular-hastate....6. A. LENTIFORMIS

8. Bracts larger, 5-10 mm. long, not veined; leaves reniform.....7. A. HYMENELYTRA

7. Bracts with a distinctly toothed margin or appendaged on the back.

9. Bracts flattened, united about one-third.

8. A. POLYCARPA

9. Bracts thickish, spongy, united nearly to apex.

9. A. NUTTALLII

1. Plants herbs; monoecious.

10. Staminate and pistillate flowers usually mixed in same cluster; annuals.

11. Herbage succulent and mealy; leaves petioled, the lower at least 2.5 cm. long; bracts distinct or nearly so, ovate to rhombic.

12. Lower leaves alternate; flowers in axillary clusters; fruiting bracts 0.7-1.0 cm. long; bracts united to about the middle.....10. A. PHYLLOSTEGIA

12. Lower leaves opposite; flowers in naked or nearly naked spikes; bracts united only at the base.

13. Leaves mostly lanceolate; fruiting bracts 1.0-1.2 cm. long.....11a. A. PATULA PATULA

13. Leaves triangular-hastate or deltoid; fruiting bracts

0.3-0.5 cm. long.....11b. A. PATULA HASTATA

11. Herbage not succulent, gray or whitish with a permanent scurf, at least on the lower surface.

14. Leaves small, 3-20 mm. long, sessile or short-petioled, ovate to obovate, usually entire.

15. Bracts orbicular, the margin regularly and minutely toothed; leaves 8-20 mm. long, sessile or the lowest petioled.....12. A. FASCICULATA

15. Bracts ovate, the margin entire; leaves 3-8 mm. long, sessile.....13. A. PUSILLA

14. Leaves usually large, 1-6 cm. long and petiolate, subsessile or sessile.

16. Bracts broadly cuneate, truncate at the apex, seldom with tubercules.

17. Bracts subentire, corky at the apex, of 2 kinds on each plant; fruit short-peduncled; leaves cordate-ovate.....14. A. SACCARIA

17. Bracts bluntly 2- to 4-toothed at the herbaceous apex; all similar on same plant; fruit subsessile; leaves more triangular-ovate, never cordate at base. 15. A. TRUNCATA

16. Bracts ovate, acute, longer than broad; branches terete or nearly so.....16. A. ROSEA

10. Staminate flowers in terminal naked spikes, the pistillate flowers in axillary clusters; not usually mixed.

18. Fruiting bracts cuneate-orbicular, 2-3 mm. long, united

below, the herbaceous margins deeply dentate, the terminal tooth usually longer than the lateral ones, the sides usually conspicuously tuberculate.....17. A. SERENANA

18. Fruiting bracts suborbicular, 4-8 mm. long and as wide, usually deeply toothed, but not herbaceous, the sides smooth or with projections on the faces.

19. Bracts with linear, subulate or oblong appendages on the back, the appendages becoming quite horny; staminate spikes few, mixed with pistillate.

18b. A. ARGENTEA VAR. CAPUT-MEDUSAE

19. Bracts with triangular lobes and appendages; staminate spikes, if present, very short.

18a. A. ARGENTEA SSP. ARGENTEA

1. ATRIPLEX CANESCENS (Pursh.) Nutt., Gen. Pl. 1: 197. 1818; Standl., N. Amer. Flora 21(1): 71. 1916. (Map 19)

Syn.: Calligonum canescens Pursh, Fl. Am. Sept. 340. 1814; Atriplex canescens ssp. typica Hall & Clements, Phylog. Meth. Taxon. 343, pl. 58. 1923.

Perennial shrubs, up to 2 m. tall, woody, loosely to densely branched, with the stems rather stout and gray-scurfy; leaves 1-5 cm. long, sessile or nearly so, oval, elliptic to oblanceolate, long-cuneate at the base and usually obtuse at the apex, entire, rather thick, with a gray scurf; plants usually dioecious; the pistillate flowers axillary, short pedicelled; the staminate flowers in subterminal spikes in glomerules, usually leafy below; body

of fruiting bracts little compressed, united to the summit, orbicular in outline, conspicuously 4-winged from sides and back of bracts, faces smooth or with small appendages, the whole bract 4-15 mm. long, rarely longer; seed 1.5-2.0 mm. long, the radicle superior.

Range: Dry mesas and alkaline valleys, April-Oct. Alberta to Washington, S. to California, Texas, Arizona and Mexico.

Nevada: Found throughout the State and recorded from every county except Douglas, Eureka, Lander and Ormsby.

Representative specimens: CHURCHILL CO.: Carson Sink Region, Kennedy 1774 (NES-9602); Truckee-Carson Exp. Station, Fallon, F.B. Headley (RENO-17612); Fallon, E.C.Chilcott (NA-4137); near Clan Alpine Mts., Tidestrom 10813 (RM-92496); 1-6 mi. W. of Carroll Summitt, Goodner & Henning 675 (NA-71786); 2 mi. E. Frenchman Station, Mills & Beach C-9 (NA-302509); vic. of Eastgate, near Whiteman Ranch; Allen 345 (NA-71805); CLARK CO.: Rioville, April 12, 1894, M.E.Jones 5034-c (US-271462); Rioville, Colorado River, Goodding 728 (US-485394; RM-41937); St. Joe, April 9, 1894, Jones 5030-i (US-271461); Petrified Forest Canyon, W. of Logan, Heller 10454 (NES-13233; US-509738) and Heller 10453 (NES-13631; US-509737); between Owens and Lee Canyon, Heller 10980 (US-693770); Las Vegas, Kearney, Santz & Piemeisel (US-15882); Kyle Canyon, Clokey 7074 (US-1696898; RM-152666); Kyle Canyon, Deer Creek, Clokey 5453 (US-1696841; RM-152667); 5 mi. SE. of Las Vegas, LaRivers & Hancock 165 (NA-71808); Kyle Canyon, 10 mi. E. of Charleston Peak, Spring Mts., LaRivers & Hancock 554 (NA-71766); 560 (NA-72015); 2 mi. SE. of Las Vegas. Train 1644 (NA-71763); Warm Springs, 8 mi. W. of Moapa, Train 1852 (NA-71821); Moapa Indian Res., Train 1930 (NA-71985); Kyle Canyon, Charleston Mts., Clokey 7910 (NA-91526; US-1785447; RM-181769); Kyle Canyon, Charleston Mts., Clokey 8327, (NA-91552; US-1785575; RM-181578) and 8328 (NA-91557; US-1795576; RM-181577); Mormon Wells, Desert Game Refuge, O.J.Murie 2704 (NA-250779); Hidden Forest, Desert Game Refuge, J.C.Allen 147 (NA-99955); Betw. Sheep and Desert Range, Las Vegas, O.V.Deming, Desert Game Range 151 (US-1926089, close to var. linearis (Wats.) Munz); ELKO CO.: 5 mi. W. of Wendover, Maguire & Holmgren 22028 (NA-291340); ESMERALDA CO.: Candelaria, May 1882, W.H.Shockley 202 (US-65569); Goldfield, Heller 10416 (NES-13630; US-509703); Chiatovitch Creek, 2 mi. W. of Kellog Ranch, Archer 7218 (NA-71987) and 7219 (NA-71834); Lida, Train 3449 (NA-156772); HUMBOLDT CO.: Wheeler Ranch, 21 mi. S. of Soldiers Meadows, Train 3100 (NA-183922); LINCOLN CO.: Moapa, Kennedy 1125 (NES-14541; NES-6394; US-505938); Caliente, Tidestrom 9528 (RM-107429); Quartz Springs, Pintwater Range, LaRivers & Hancock 645 A (NA-72013); 645 B (NA-71823), 646

(NA-71995); 7 mi. N. of Caliente, LaRivers & Hancock 665 (NA-71969); 11 mi. SSW. of Caliente in Kershaw Canyon, LaRivers & Hancock 677 (NA-71971); Panaca area, Hermansen 242 H (NA-75428); Panaca Valley and vic. of High Desert, Marie Gentry 112 (US-1979121); LYON CO.: 13 mi. E. of Dayton, Goodner & Henning 33 (NA-71809); 1 mi. W. of Dayton, R.A.Allen 91 (NA-71788); 20 mi. NE. of Yerington, Allen 219 (NA-71789); W. of Yerington, Koch, Holstein & Carlson C-60 (NA-75422); about Lahontan Dam, A.R.Kruckeberg 2881 (RM-239584); MINERAL CO.: 8-15 mi. N. of Hawthorne, Henning 323 (NA-72001); 3 mi. N. of Hawthorne near mouth of Cory Creek, Archer 6809 (NA-71782); Mouth of Cory Creek, Wassuk Range, Archer 6844 (NA-71991) and 6824 (NA-71968); NYE CO.: Smoke Creek, Griffiths & Hunter 496 (US-505701); Shockley 151 (NES-7907); W. of Stonewall Flat, P.Monnet 984 (US-509984); 2-5 mi. below mouth of North Fork of Twin Rivers, Henning 153 (NA-71956); 2-9 mi. E. of Manhattan, Henning 163 (NA-71794); 16 mi. NW. of Ione, Kay H. Beach 983 (NA-290350); 15 mi. NW. of Ione, Beach 996 (NA-291885; RM-235349); PERSHING CO.: Unionville Valley, June 1868, Watson 981 (US-25234); Oreana, Train 41 (NA-72016); Lovelock, 1 mi. N. of South Pacific overhead of Victory Highway, Train 42 (NA-71797); WASHOE CO.: Truckee Pass, Virginia Mts., Kennedy 731 (NES-2344; RM 44904, dated June 6, 1903); Winnemucca Lake, Kennedy 1994 (NES-14420; US-692755); N. of Reno, Petersen 299 (NES-14542); Chaps Canyon, 8-10 mi. E. of Sparks, Lehenbauer (NA-44757); near Desert Inn, Pyramid Lake, Lehenbauer (NA-43209); 3 mi. W. of Reno, Lehenbauer 1512 (RENO-4766); 3 mi. N. of Sparks, Lehenbauer 1521 (RENO-4781); vic. Wadsworth, Archer 5535 (NA-71768); 2 mi. E. of Derby, Archer 5543 (NA-71990; Archer 5544 (NA-71974); 5.2 mi. NNE. of Steamboat Springs, Adams 73 (NA-77979); 2-7 mi. N. of Wadsworth, Archer 6198 (NA-71973); 2.7 mi. SSW. of Spanish Springs, Roy W. Saarni 182 (NA-77978); 2 mi. N. of Wadsworth, Calvin McMillan & Kent H. McKnight 102 (NA-278593); 15 mi. E. of Reno, W.K.Sandow (RENO-15077); 0.8 mi. SW. Indian Rock, Simontacchi 523 (NA-302498); WHITE PINE CO.: Ely, A.E.Hitchcock 1243 (US-692943); 1/4 mi. W. of Ely, Henrichs 453 (RENO 4761); Steptoe Creek, Shell Creek Range, Train 1002 (NA-71784); Mt. Moriah, 10 mi. N. of Sacramento Pass, Train 1191 (NA-71890 and 71961).

2. ATRIPLEX TETRAPTERA (Benth.) Rydb., Bull. Torr. Bot. Cl. 39: 311. 1912; Flora of Rocky Mts., 246 and 249. 1922.

Syn.: Obione tetraptera Benth., Bot. Voy. Sulph. 48. 1844.

Shrubby perennial; stem 6-10 dm. tall, whitish, branched; leaves 2-4 cm. long, very narrow, linear, 2-5 mm. wide; pistillate flowers axillary; the staminate clusters forming subterminal spikes;

fruiting bracts about 1 cm. broad, the sinus of the strongly reticulate bract broad, the free portion of the bract less than half as long as the width of the wing. Rydb., Flora of Rocky Mountains, p. 246, 249. 1922.

Range: Desert regions. April-July. S. Utah, Nevada, Arizona and S. California. No specimens seen from Nevada.

Sometimes this species is considered under A. canescens for the very narrow leaved forms. The other characters vary considerably in A. canescens.

3. ATRIPLEX PARRYI S. Wats., Proc. Amer. Acad. 17: 378. 1882; Standl., N. Amer. Flora 21(1): 64. 1916. (Map 27)

Erect shrub, up to 40 cm. tall, densely branching, rounded, copiously furfuraceous when young, becoming glabrate with age, the branches slender, rigid, spinosely tipped; leaves thick, round-cordate, obtuse or acute, sessile, up to nearly 1.5 cm. broad or long, densely furfuraceous; flowers dioecious, in axillary clusters, the staminate clusters of 1-3 or in dense glomerules in the axils, forming stout paniculate leafy spikes; calyx deeply cleft, densely furfuraceous; pistillate flowers 1-4 in axils, the spikes paniculately branched; fruiting bracts very small, 1-3 mm. long, sessile, somewhat fan-shaped, united to above the middle, abruptly dilated above the broadly cuneate base, the free margin short but broad and with a few low teeth, the sides smooth.

Range: S. California (Mohave Desert and Inyo Co.) to S. and E. Nevada. March-Sept.

Nevada: Esmeralda, Lincoln and Nye Cos.

Representative specimens: ESMERALDA CO.: NE. branch of the Fish Lake Valley, Archer 7244 (NA-71935); LINCOLN CO.: on Ash Meadows Ranch, March 21, 1891, F.V.Coville & F.Funston 439 (US-65576); NYE CO.: Beattie, Heller 10421 (US-509708).

4. ATRIPLEX CONFERTIFOLIA (Torr. in Frém.) S.Wats., Proc. Amer. Acad. 9: 119. 1874. "shadscale"

(Map 20)

Syn.: Obione confertifolia Torr. in Frém. Rep. Calif. 318. 1845; O. spinosa Moq. in DC., Prodr. 13(2): 108. 1849; Atriplex spinosa D.Dietr., Syn. Pl. 5: 536. 1852; A. collina Woot. & Standl., Contr. U.S.Nat. Herb. 16: 119. 1913; Standl., N. Amer. Flora 21(1): 70. 1916.

Perennial shrubs, up to 1 m. tall, woody, usually rounded in outline, with terete, spinescent branches, sparsely scurfy at first only; leaves 1-2 cm. long, crowded, short-petioled, orbicular-ovate, ovate or obovate to elliptic, rounded or cuneate at the base, entire, rather firm but not especially thick, 1- to 3-nerved, permanently scurfy; flowers dioecious, in small, dense, axillary clusters; fruiting bracts broadly ovate or suborbicular, about 1 cm. broad, entire, united at base over seed, usually broadest near the base, dense furfuraceous, smooth; seed 1.5-2.0 mm. broad, reddish-brown, the radicle superior.

Range: Alkaline valleys and bluffs. April-Sept. North Dakota to Oregon, S. to Chihuahua, Nevada and California.

Nevada: Known from every county in the State, except Douglas and Ormsby.

Representative specimens: CHURCHILL CO.: 3 mi. out of Fallon, Murphey 89 (RENO-4805); CLARK CO.: Mica Springs, April 13, 1894, M.E.Jones 5048 (RM-14663); 10 mi. below Mica Springs, April 13, 1894, Jones 5048 (US-271455); Las Vegas, Goodding 2314 (RM-65188); Las Vegas, Ruth Oppedyk (RENO-4808); Las Vegas, Grace Cole Fleischman (NA-182832); 5 mi. SE. of Las Vegas, LaRivers & Hancock 166 (NA-71947), 167 (NA-72008); Las Vegas City Dump, 2 mi. SE. of city, Train 1643 (NA-72017); 4 mi. NW. of Las Vegas, F.A.Barkley & M.J. Reed 4114 (NA-100077); Stump Springs, 20 mi. NW. of Ripley, LaRivers & Hancock 383 (NA-71942); 10-12 mi. N. of Ripley, LaRivers & Hancock 360 (NA-71958), 359 (NA-71917), 358 (NA-71952); Charleston Mts., S. of Indian Springs, Clokey 8330 (NA-91572; US-1785577; RM-181571); Indian Springs, Clokey 8331 (NA-91567; US-1785578; RM-181574); Clokey 8334 (RENO-8592); Spring Valley, Desert Game Range, J.C.Allen 69 (NA-95148); ELKO CO.: Battle Mt., Kennedy 3086 (US-692762); Air Beacon Knoll, 4 mi. W. of Wendover, Train 3795 (NA-279030); ESMERALDA CO.: Stonewall Flat, 9 mi. S. Goldfield, Gullion 403 (NA-302519); Candelaria, 1882, Shockley 11 (US-65570); Pigeon Spring, June 8, 1891, Vernon Bailey, F.V.Coville & F.Funston 2012 (US-65575); E. of Goldfield, Tidestrom 9789 (RM-92483); EUREKA CO.: 15 mi. SE. of Beowawe, Kennedy (NES-2375 and 2371); Welchs Canyon, P.B. Kennedy 817 (NES-2347); Wells Canyon, Kennedy 817 (RM-44903); HUMBOLDT CO.: Humboldt Co., J.Torrey 468 (US-65573); Leonard Creek Ranch, Griffiths & Morris 364 (NA-41489); Quinn River Valley, Train 190 (NA-71921); LANDER CO.: along railroad, Battle Mt., A.E.Hitchcock 635 (US-692924); near Humboldt River, about 3 mi. E. of Battle Mt., Goodner & Henning 1058 (NA-71930); 2-5 mi. N. of Grass Valley Ranch, Goodner & Henning 1118 (NA-72014); 15-19 mi. S. of U.S. No. 50 near Nev. No. 8A, Goodner & Henning 1147 (NA-71914); 15-20 mi. W. of Austin, Goodner & Henning 1296 (NA-71965); mouth of Birch Creek Canyon, 14 mi. from Austin, Henning 73 (NA-72011); LINCOLN CO.: Panaca Valley, Marie Gentry 114 (US-1979122); Moapa, Kennedy 1122 (NES-14558; US-505935); Muddy Valley, P.B.Kennedy & L.N.Goodding (NA-292104; US-506189); Coal Valley, 30 mi. N. of Hiko-Sunnyside Road, LaRivers & Hancock 714 (NA-71944); South Crystal Springs area, Hermansen 200 H (NA-75426); LYON CO.: 20 mi. NE. of Yerington near Walker River Indian Res., R.A.Allen 221 (NA-71922); N. of Yerington, Koch, Holstein and Carlson N-15 (NA-75420); about Lahontan Dam, A.R.Kruckeberg (RM-239574); MINERAL CO.: about 50 mi. W. of Tonopah, W.H.Henning 227 (NA-71994), 234 (NA-71928); NYE CO.: Rhyolite, Heller 9671 (NES-11986; US-508992); Beattie, Heller 10421 (NES-13632); Sarcobatus Flat, Monnet 1021 (US-509999); S. of Bonnie Clare, A.Rives & W.McKenzie 32 (NA-71962); S. of Cloverdale, July 16, 1937, Goodner & Henning 740 (NA-71946); near Ione, Beach 127 (NA-278644); 2 mi. below mouth of North Fork of Twin Rivers, Henning 99 (NA-71960); 13-15 mi. SE. of Manhattan, Henning 175 (NA-71951), 174 (NA-71988); 1 mi. NW. of Penelas (15 mi. NW. of Ione), Beach 998 (NA-291878; RM 235344); PERSHING CO.: edge of Humboldt Sink, 15 mi. SW. of Lovelock, Billings 1162 (RENO 6088), 1161 (RENO 11388); STOREY CO.: S. of Truckee River, about 5 mi. W. of Wadsworth, Kay H. Beach & Laura E. Mills 1097 (NA-290294), 1098 (NA-290296);

WASHOE CO.: Truckee Pass, May 1868, S.Watson 983 (US-65571); Regan's Valley, June 1868, Watson 983 (US-65572); betw. Wadsworth and Mud Lake, Kennedy 444 (NES-2369); 2 mi. E. of Derby, along highway to Reno, Archer 5545 (NA-71925); near W. shore Pyramid Lake, A.E.Wieslander 786 (NA-79577); WSW. of Pyramid, Simontacchi 502 (NA-77998); Reno Hot Springs, 11 mi. S. of Reno, Archer 6006 (NA-71966); E. margin Mud Lake, 1 mi. N. Charles Sheldon Antelope Refuge Gate, Train 2993 (NA-183498); Steamboat Springs, July 14, 1939, Heller 16392 (US-1974781); NE. of Hoffaker, K.E.Bradshaw 211 (NA-77981); WHITE PINE CO.: Ely, A.E.Hitchcock 1323 (US-692947); betw. McGill and Ely, Duck Creek, Hitchcock 1348 (US-692950); Steptoe Valley, vic. of Currie, Train 967 (NA-71980).

5. ATRIPLEX TORREYI S.Wats., Proc. Amer. Acad. 9: 119. 1874.

"Torrey's saltbush"

(Map 25)

Syn.: Obione torreyi S.Wats., Bot. King's Exp. 290. 1871 (TYPE: Ormsby-Washoe Co., dry valleys bordering Truckee and Carson Valleys, Dr. Torrey. Aug., No. 984, July, No. 463. (US)); Atriplex lentiformis ssp. torreyi (Wats.) Hall & Clements, Phylog. Meth. Taxon. 336, pl. 55. 1923; A. lentiformis var. torreyi (Wats.) McMinn, Ill. Man. Calif. Shrubs, 113, 1939; A. torreyana on herbarium sheets.

Perennial shrub, 6-20 dm. high, much-branching, with stout, angled branches and divergent, spinose-tipped branchlets, white-furfuraceous when young, becoming glabrate and the older stems with grayish bark; leaves petiolate (about 5 mm. long) or the upper ones subsessile, triangular to ovate or oblong, often subhastate, entire, thick and densely white-furfuraceous; flowers dioecious, both kinds in dense naked spikes; fruiting bracts orbicular to subreniform, sessile, 2-3 mm. long, strongly compressed, distinct, the margins

obscurely crenate-denticulate (sometimes smooth) and smooth veiny sides.

Range: Alkaline soils. May-Oct. N. Nevada to Mojave Desert, California, S. Utah and N. Arizona. TYPE LOC.: Humboldt Co., Nev., (A. torreyi Wats.); Ormsby-Washoe Co., Truckee and Carson Rivers, Nev., (Obione torreyi).

Nevada: Churchill, Douglas, Esmeralda, Humboldt, Lander, Lincoln, Mineral, Nye, Ormsby and Washoe Cos. Found mainly in the western half of the State.

Representative specimens: CHURCHILL CO.: Stillwater, May 8, 1898, V. Bailey 100 (US-327242); Carson Sink Region, Kennedy 1713 (NES-7962; RM-61128; US-506118); Fallon, Tidestrom 10762 (US-1117581); Stillwater, Tidestrom 10798 (RM-92495); 5 mi. W. of Fallon, Train 166 (US-1653859); 3 mi. S. of Toy, R.A.Allen 437 (NA-71941); near Stillwater, Laura E. Mills 12 (NA-290856); DOUGLAS Co.: 1.7 mi. SW. of McTarnahan Bridge, Dan Tillotson 260 (NA-99923); ESMERALDA CO.: Silver Peak Mts., E.A.Goldman 2555 (US-767712); HUMBOLDT CO.: "Humboldt Co., Nev.", 1865, J.Torrey 463 (marked "isotype"), (US-55389), sheet marked as Atriplex torreyi; also in US, without museum number, dry valleys bordering Truckee and Carson Valleys, Dr. Torrey 463, July (without date) and Dr. Torrey 984, Aug. (without date), identified as Obione torreyi Wats.; Black Rock Desert, D.Griffiths & Byron Hunter 532 (US-505732); Quinn River Crossing, Griffiths & Morris 112 (NA-41635); LANDER CO.: near Humboldt River, about 3 mi. E. of Battle Mt., Goodner & Henning 1054 (NA-71897); vic. within 6 mi. of Cortez, Goodner & Henning 951 (NA-71939); LINCOLN CO.: Crystal Springs, along highway, Hermansen 75H (NA-75424); MINERAL CO.: mouth of Cory Creek, Wassuk Range, W.A. Archer 6829 (NA-71915); NYE CO.: Smoke Creek, Griffiths & Hunter 511 (US-505714); Sarcobatus Flat, Monnet 991 (US-509987); Beatty, Train 2343 (NA-71893); Cloverdale, V.Bailey 108 (US-327250); WASHOE CO.: Glendale, Kennedy 1199 (NES-13818).

6. ATRIPLEX LENTIFORMIS (Torr.) S.Wats., Proc. Amer. Acad. 9: 118. 1874; Standl., N. Amer. Flora 21(1): 63. 1916. "quail brush" (Map 25)

Syn.: Obione lentiformis Torr., in Sitgreaves, Rep. Exp. 169.

1851; Atriplex griffithsii Standl, N. Amer. Flora 21(1): 63. 1926; A. lentiformis ssp. typica Hall & Clements, Phylog. Meth. Taxon. 335, pl. 54. 1923; A. lentiformis ssp. griffithsii (Standl.) Hall & Clements, l.c.: 336, pl. 55. 1923; A. lentiformis var. griffithsii (Standl.) Benson, Amer. Jour. Bot. 30: 236. 1943.

Perennial shrub, 6-35 dm. tall, much-branched, widely spreading, rather slender, not spinose, terete, densely furfuraceous, becoming glabrate and whitish in age; leaves ovate-deltoid to oblong, 15-50 mm. long, rounded or cuneate at the base, short-petioled, rather thin, densely furfuraceous on both sides; plants monoecious, flowers dioecious, the staminate in paniculate spikes, nearly naked and the branches slender, often drooping, the pistillate in dense paniculate spikes; fruiting bracts orbicular-ovate, 3-4 mm. long, strongly compressed, united to above the middle, the margin finely crenulate, thin, furfuraceous; seed 1.0-1.5 mm. broad, light to dark brown.

Range: Alkaline flats and along rivers. Apr.-Sept. California (Mohave and Colorado Deserts; upper San Joaquin Valley) E. to SE. Nevada and Arizona.

Nevada: CLARK CO.: St. Joe, April 9, 1894, M.E.Jones 5030-K (US-271467); NYE CO.: Cloverdale Ranch, Tonopah-Reese River road, Train 3437 (NA-156773), labeled A. lentiformis ssp. griffithsii (Standl.) Hall & Clements, but is very slightly spinose, and could be A. torreyi, which is more common species in Nevada.

7. ATRIPLEX HYMENELYTRA (Torr.) S.Wats., Proc. Amer. Acad. 9: 119. 1874. "desert holly; silvery holly" (Map 25)

Syn.: Obione hymenelytra Torr., Pacif. R.R.Rep. 4: 129. 1857.

Erect, shrubby perennial; stems diffusely branched, 6-10 dm. tall, from a thickened and often very gnarled woody base, 2.5 cm. diam.; herbage covered with a dense smooth silvery-white scurf; leaves reniform, 1-4 cm. broad, somewhat cordate at the base, the undulate margin with coarse salient teeth, petioles up to 1.5 cm. long; plants monoecious; flower clusters in panicled spikes, terminal or axillary; fruiting bracts on a short, clavate pedicel, reniform, strongly flattened, entire, 0.5-1.3 cm. broad, distinct or nearly so, the margins entirely free and the sides smooth; seed 1.5-2 mm. broad, the radicle superior.

Range: Alkaline plains. March-Dec. E. California to W. Arizona and Nevada.

Nevada: CLARK CO.: Bunkerville, April 6, 1894, M.E.Jones 5029 (NES-12255; RM-63683; RM-14064; US-271457); Moapa, Kennedy 1802, (NES-11258; US-408773); Petrified Forest Canyon, W. of Logan, Heller 10452 (NES-13629; US-409736); 1 mi. E. of Moapa, Tidestrom 8630 (NA-83854); Vegas Wash, near Colorado River, Tidestrom 8976 (US-1221041); Moapa, mesa toward the Indian Agency, Tidestrom 8674 (NA-83874); Tidestrom 8675 (NA-83851); "southern Nevada", Dec. 1, 1930, Mrs. Waymire (RENO 4815); 1 mi. SE. of Porter Mine, Newberry Mts., Train 1397 (NA-71954); S. of Indian Springs, Clokey 7909 (NA-91491; RM 181770; US-1785446); West End Chemical Co., Mine Canyon, Muddy Mts., Train 1819 (NA-71891); Spring Valley road, Desert Game Refuge, J.C.Allen 68 (NA-95150); along highway No. 93 near Lincoln Co., H.D.Winters 1526 (NA-81342); near Rhyolite, Lehenbauer (RENO 4814); near Boulder City, Catherine Ashton (RM-146832).

8. ATRIPLEX POLYCARPA (Torr.) S. Wats., Proc. Amer. Acad. 9: 117. 1874; Standl., N. Amer. Flora 21(1): 64-65. 1916.

"cattle spinach"

(Map 26)

Syn.: Obione polycarpa Torr. (in Emory, Notes Mil. Rec. 149, hyponym, 1848), Pacif. R.R.Rep. 4: 130. 1857.

Shrub, up to 1 m. tall, light-gray, branches slender and rigid, with numerous more or less spiny branchelts, exfoliating; leaves thick, obovate to oblong-spatulate, obtuse, sessile, those of the vegetative branches up to 2.0 cm. long, deciduous during the high heat season, those of the flowering and fruiting branches very small, up to 1.2 cm. long, with smaller ones fasciculed in the axils; flowers dioecious, in close naked panicled spikes; fruiting bracts roundish, united about one-third up, commonly broader than long, variously unequally toothed, with one or two spreading teeth on the sides or sometimes quite smooth; seed 1 mm. broad, reddish-brown, the radicle superior.

Range: Desert bottoms and flats. March-Sept. Sonora and Lower California to California and E. to S. Nevada and Arizona.

Nevada: CLARK CO.: 10 mi. from Stone's Ferry, April 11, 1894, M.E.Jones 5032-o (US-271464); near Hole in the Rock, 8 mi. above Rioville, April 13, 1894, Jones 5036-ar (US-271465); April 12, 1894, Jones 5036-i (US-271463); Overton, Jones (US-856499); near Las Vegas, Kearney (NA-68954); Moapa, Tidestrom 8627 (US-1117276); betw. Las Vegas and the mts. southeast, Tidestrom 8714 (NA-83871); 5 mi. SE. of Las Vegas, LaRivers & Hancock 168 (NA-71937).

9. ATRIPLEX NUTTALLII S. Wats., Proc. Amer. Acad. 9: 116. 1874; Davis, Flora of Idaho, 261. 1952. (Map 24)

Syn.: Obione gardneri Moq., in DC., Prodr. 13(2): 114. 1849; Atriplex tridentata Kuntze, Rev. Gen. 546. 1891; A. pabularis

Nels., Bull. Torr. Bot. Cl. 25: 203. 1898; A. eremicola Osterh., l.c. 25: 284. 1898; A. cuneata Nels., Bot. Gaz. 34: 357. 1902; A. oblanceolata Rydb., Bull. Torr. Bot. Cl. 31: 403. 1904; A. falcata (Jones) Standl., N. Amer. Fl. 21(1): 68. 1916; A. neomexicana Standl., N. Amer. Fl. 21(1): 69. 1916.

Subshrub, branching and woody at the base, but the erect or ascending stems mainly herbaceous, 2-5 dm. tall, gray to white; leaves oblong to spatulate, 3-5 cm. long, tapering to a short petiole, entire, gray to greenish-white; dioecious, the flowers in glomerules, in terminal spikes or narrow panicles; fruiting bracts ovate or orbicular-ovate, 4-6 mm. long, toothed at the summit, the terminal pair of teeth forming a flat lanceolate beak, the sides covered with sharp various appendages, or smooth.

KEY TO VARIETIES

1. Bracts broadest below the middle, strongly tuberculate or appendaged.
   2. Bracts ovate, sessile or nearly so; leaf-blades oblanceolate to oblong.....9a. var. NUTTALLII
   2. Bracts fusiform, stalked; leaf-blades oblong-linear to linear. 9b. var. FALCATA
1. Bracts broadest above the middle, usually smooth on sides, oblong-cuneate, 3-toothed at the apex, the middle tooth the longest; leaves oblanceolate-cuneate.....9c. var. GARDNERI

9a. ATRIPLEX NUTTALLII (var. NUTTALLII) S. Wats., Proc. Amer. Acad.

9: 116. 1874. (Map 24)

Syn.: Atriplex nuttallii var. utahensis Jones, Contr. West. Bot. No. 11: 10. 1903; A. oblanceolata Rydb., Bull. Torr. Bot. Cl. 31: 403. 1904; A. nuttallii ssp. typica Hall & Clements, Phylog. Meth. Taxon. 323. 1923.

Suffruticose or shrubby perennial; stems 3-6 dm. tall, branching near the base; leaves 2-5 cm. long; pistillate flowers in axillary clusters; fruiting bracts ovate or orbicular, 3-4 mm. long, irregularly toothed, muricate or tooth-crested on the faces, widest below the middle.

Range: Alkali and saline flats. June-Sept. Alberta, Saskatchewan, Manitoba and Idaho S. to N. Utah, Colorado and Nebraska.

Nevada: Elko, Humboldt and Mineral Cos.

Representative specimens: ELKO CO.: along railroad, Battle Mt., A.E.Hitchcock 587 (US-692916) and 588 (US-692917); HUMBOLDT CO.: betw. Golconda and Midas, H.M.Hall 12193 (US-1486224); MINERAL CO.: Belleville, Tidestrom 10045 (US-1117323); Hawthorne, Tidestrom 10068 (US-1117328).

9b. ATRIPLEX NUTTALLII var. FALCATA Jones, Contr. West. Bot. No. 11: 19. 1903; Davis, Flora of Idaho, p. 261. 1952. (Map 24)

Syn.: Atriplex nuttallii var. anomala Jones, Contr. West. Bot. No. 11: 19. 1903; A. falcata (Jones) Standl., N. Amer. Flora 21(1): 68. 1916; Rydb., Flora Rocky Mts., p. 249. 1922.

Suffruticose perennial; stem 2-5 dm. tall, with ascending branches; leaves 1.5-5 cm. long, 2-7 mm. wide, oblong-linear to linear; flower-clusters both axillary and in terminal spikes; fruiting bracts 5-8 mm. long, entire-margined or sparsely dentate

at the apex, united to near the tip, often muricate or tuberculate below, broadest below the middle.

Range: Alkaline soils of plains and slopes. May-Sept. Washington and E. Oregon, Idaho, S. to N. California, Nevada and N. Utah. Most of the specimens of A. nuttallii from Nevada belong in this variety.

Nevada: Elko, Humboldt, N. Nye and Washoe Cos.

Representative specimens: ELKO CO.: Thousand Spring Valley, Sept. 1868, Watson 981 (US); Dolly Varden Smelter, July 1894, M.E. Jones (TYPE: A. nuttallii var. anomala Jones); Battle Mt., Kennedy 3090 (NES-14414) and 3074 (US-692763); 2 mi. N. of Montello, Train 3680 (NA-279029); near Montello, Train 3679 (NA-279031); near CCC, S. of Contact, Piemeisel 42-881 (NA-289943); HUMBOLDT CO.: Leonard Creek Ranch, Griffiths & Morris 351 (NA-41688; US-402676); near Golconda, Chamberlain 34-2 (NA-257555); N. NYE CO.: Reese Valley, July 1868, Watson 981 (US-25236); WASHOE CO.: Winnemucca Lake, Kennedy 1974 (NES-14416; US-692759).

9c. ATRIPLEX NUTTALLII var. GARDNERI (Moq.) Hall & Clements, Phylog. Meth. Taxon. 324. fig. 46, pl. 51. 1923 (ssp.); Davis, Flora of Idaho, 261. 1952.

Syn.: Obione gardneri Moq. in DC., Prodr. 13(2): 114. 1849; Atriplex gordoni Hook., Jour. Bot. & Kew Misc. 5: 261. 1853; A. eremicola Osterh., Bull. Torr. Bot. Cl. 25: 284. 1898; A. pabularis var. eremicola (Osterh.) Nels., in Coult. & Nels., Man. 168. 1909; A. gardneri (Moq.) Standl., N. Mer. Fl. 21(1): 66. 1916; Bull. Torr. Bot. Cl. 44: 425. 1917.

Suffruticose perennial; stems decumbent at the base, 2-4 dm. tall; leaves sessile or nearly so, blades 3-6 mm. wide, 1.5-3 cm. long; flowers in axillary, capitate clusters or the staminate more paniculate above; fruiting bracts 5-6 mm. long, faces smooth and

reticulate, broadest above the base.

Range: S. Idaho to N. Colorado and Wyoming.

Nevada: Specimens labeled for this variety from Nevada seem to belong to var. falcata, as all the fruiting specimens have the dentate, tuberculate bracts of that variety and lack the smooth and reticulate faces noted for this variety.

10. ATRIPLEX PHYLLOSTEGIA (Torr.) S. Wats., Proc. Amer. Acad. 9: 108. 1874; Standl., N. Amer. Flora 21(1): 69. 1916 (Map 21)

Syn.: Obione phyllostegia Torr. ex S. Wats., Bot. King's Expl. 291. 1871 (TYPE loc.: between Truckee and Humboldt Rivers, Western Nevada, S. Watson 986, US-48544 and 48545); Endolepis phyllostegia Rydb., Bull. Torr. Bot. Cl. 39: 312. 1912; E. covillei Standl., N. Amer. Flora 21(1): 73. 1916; Atriplex covillei Macbride, Contr. Gray Herb., No. 53: 11. 1918.

Erect annual, 5-10 dm. tall, simple or much-branched, the branches stout, terete, ascending to spreading, sparsely furfuraceous to smooth; leaves thin, rhombic-triangular, hastate or ovate, 2-5 cm. long, entire, alternate; flowers monoecious, or the plants entirely pistillate, the staminate glomerules large, axillary, or in naked terminal spikes, the pistillate flowers fascicled in the axils or in terminal, sparsely leafy spikes; calyx 5-cleft; fruiting bracts on pedicels 3-16 mm. long, or subsessile, 5-20 mm. long, including the terminal lobe, linear-lanceolate, strongly 3-nerved, somewhat hastately lobed, green, the sides of the bracts bearing numerous or few, long linear appendages, or without appendages;

seeds 1.5 mm. long, the radicle superior.

Range: Valleys and foothills. March-Sept. W. Utah to W. Nevada.

Nevada: Esmeralda, Humboldt, Lander, Nye, Ormsby, Pershing and Washoe Cos.

Representative specimens: ESMERALDA CO.: NE. branch of Fish Lake Valley, near Gap Spring, Archer 7245 (NA-71945); HUMBOLDT CO.: 20 mi. S. of Soldier Meadows Ranch, near Wheeler Ranch, Train 2591 (NA-71940); LANDER CO.: 35 mi. S. of Austin, Henning 325 (NA-71938); NYE CO.: Ash Meadows Ranch, Coville & Funston 370 (US); Beatty, Train 2345 (NA-71907); Amargoso Desert, Jones (US-1468479); ORMSBY CO.: Eagle Valley, C.F.Baker 1251 (US-419436), Baker 1451 (RM-168576); PERSHING CO.: Lovelock, Griffiths & Hunter 542 (US-505740); WASHOE CO.: Chandlers Ranch, near Reno, Sept. 28, 1894, Hillman (NES-2374); 26 mi. N. of Reno on road to Doyle, Hall 11683 (US-1288524); 0.9 mile WSW. of Spanish Springs, T.M.Hendrix 875 (NA-79549); 2.5 mi. NW. of Huffaker, Bradshaw 212 (NA-95245).

10a. ATRIPLEX PHYLLOSTEGIA var. DRACONIS (Jones) Fosberg, Amer. Midl. Nat. 26: 694. 1941. (Map 21)

Syn.: Atriplex draconis Jones, Contr. West. Bot. 8: 40. 1898; 11: 20. 1903.

Characterized by having the fruiting bracts greatly elongated, often united nearly to the summit, with the basal lobes variously suppressed or developed into irregularly toothed or lacerate projections, the faces smooth to prominently appended, the pedicels from very short to as long as the bracts, often strongly thickened toward the apex.--Fosberg, l.c.: 694.

Nevada: Churchill, Humboldt and Washoe Cos. Sandy dunes. May-Aug.

Representative specimens: CHURCHILL CO.: about 10 mi. from Fallon, Murphey 85 (NA-226253); Fallon, E.W.Curtis 31 (RENO-17664);

HUMBOLDT CO.: Winnemucca, Griffiths & Morris 97 (NA-41689; US-402569); S. of Quinn River Crossing, Griffiths & Morris 108 (NA-41690; US-402572); WASHOE CO.: TYPE, M.E.Jones, "Nevada" (US-359071); Wadsworth, near Clarks, June 15, 1897, Jones (US-part of type).

11. ATRIPLEX PATULA L., Sp. Pl. 1053; 1753; Harrington, Manual Plants Colo., p. 206. 1954. (Map 22)

Annuals; stems 2-10 dm. tall, erect or decumbent, simple or widely branched; leaves variable as to size, 2-7 cm. long, petioled or sometimes sessile, typically subdeltoid-lanceolate to ovate but sometimes linear, cuneate to cordate or hastate at base, acute or obtuse at apex, margins entire or coarsely dentate, rather thick, glabrate and green at maturity; plants monoecious, the staminate and pistillate flowers usually together; fruiting bracts 3-12 mm. long, united only near bases, linear to broadly-deltoid, margin entire or sparsely denticulate, face smooth or with small clustered tubercules; radicle inferior.

Range: Throughout North America in saline soil.

KEY TO SUBSPECIES

1. Leaves mostly lanceolate, rarely hastate; fruiting bracts 8-12 mm. long, entire or toothed, the sides smooth or muricate. ssp. PATULA

1. Leaves triangular-hastate or deltoid; fruiting bracts 3-5 mm. long, the sides mostly toothed-crested.....ssp. HASTATA

11a. ATRIPLEX PATULA (ssp. PATULA) L., Sp. Pl. 1053. 1753; Harring-

ton, Man. Pl. Colo., 207. 1954.

Syn., A. lapathifolia Rydb., Mem. N. Y. Bot. Gard. 1: 133. 1900. A. patula ssp. typica Hall & Clements, Phylog. Method. Taxon. 250, pl. 37. 1923.

Leaves lanceolate or oblong, not hastate at base, except rarely; bracts usually narrowly rounded or broadly cuneate at the base; inflorescence more or less leafy at base. Very few Nevada specimens belong here.

Nevada: WASHOE CO.: near Reno, Sept. 20, 1930, Lehenbauer (RENO 4824).

11b. ATRIPLEX PATULA ssp. HASTATA (L.) Hall & Clements, Phylog. Meth. Taxon., 249, pl. 37. 1923; Harrington, Man. Pl. Colo., 206. 1954.

Syn.: Atriplex hastata L., Sp. Pl. 1053. 1753; Chenopodium subspicatum Nutt., Gen. 1: 199. 1818; Atriplex patula var. hastata (L.) Gray, Manual, ed. 5: 409. 1867; A. patula var. subspicata (Nutt.) S.Wats., Proc. Amer. Acad. 9: 107. 1874; A. patula ssp. hastata var. subspicata (Nutt.) S.Wats., l.c.; A. carnosa Nels., Bot. Gaz. 34: 361. 1902; A. subspicata (Nutt.) Rydb., Bull. Torr. Bot. Cl. 33: 137. 1906.

Some of the leaves triangular-hastate or rounded-deltoid, sometimes sinuately-toothed, 3-7 cm. long; flower numerous, in large fleshy clusters forming interrupted spikes, sometimes the spikes are very dense and the clusters nearly touching in the mature state; inflorescence very sparsely leafy, if at all. This is

the more common subspecies found in Nevada in saline and alkaline situations. Specimens labeled A. subspicata are barely differentiable from those labeled A. hastata. For this reason, Fosberg's varietal status, Amer. Midl. Nat. 26: 694. 1941, is not followed here.

Range: In saline and alkaline situations. July-Sept. Alberta and Idaho to Kansas, S. to New Mexico, Nevada and Colorado.

Nevada: Churchill, Douglas, Elko and Washoe Cos.

Representative specimens: CHURCHILL CO.: Fallon, Tidestrom 10722 (US-1221140); DOUGLAS CO.: 5 mi. W. of Minden, Archer 5875 (NA-71892 and 71948); ELKO CO.: Battle Mt., A.E.Hitchcock 630 (US-692922); WASHOE CO.: Ross Ranch, near Reno, Hillman (NES-2354); Glendale, near Reno, Aug. 12, 1894, Hillman (NES-6392); Glendale, Kennedy 1200 (NES-6393; US-505961, labeled A. carnosa); Glendale, Kennedy 1951 (US-509645).

12. ATRIPLEX FASCICULATA S.Wats., Proc. Amer. Acad. 17: 377. 1882.

Syn.: Atriplex elegans (Moq.) Dietr. var. fasciculata (S.Wats.) Jones, Contr., West. Bot., No. 12: 76. 1908; A. elegans ssp. fasciculata (S.Wats.) Hall & Clements, Phylog. Meth. Taxon., 301, fig. 42, pl. 46. 1923; Jepson, Man. Fl. Pl. Calif., p.325. 1923-1925 (Mohave Desert, type loc., and Inyo Co.).

Annual, 5-20 cm. tall, scurfy with many branches ascending from the base, whole plant becoming reddish with age, densely furfuraceous; leaves numerous, alternate, obovate to oblanceolate, sessile or subsessile, 5-12 mm. long, rounded or acutish at the apex, cuneate at the base, entire, rather thin, densely furfuraceous; flowers monoecious, both kinds in the same small axillary clusters; calyx 5-cleft; fruiting bracts orbicular, subsessile,

compressed, 1-3 mm. diam., the margins minutely toothed all around, the sides smooth; seed 1.5 mm. long, pale-brown, the radicle superior.

Range: SE. California and SE. Nevada to S. Arizona. Feb.-June.

Nevada: CLARK CO.: mesa talus slope, upper Moapa Valley, 5 mi. SE. near road between Glendale and St. Thomas, May 29, 1932, B.Maguire & H.L.Blood (RM-140543--distributed as A. elegans ssp. fasciculata (S.Wats.) Hall & Clements.

13. ATRIPLEX PUSILLA (Torr.) S.Wats., Proc. Amer. Acad. 9: 110. 1874.

Syn.: Obione pusilla Torr.; S. Wats., Bot. King's Expl. 291. 1871. (Map 27)

Annual, 5-25 cm. high, diffusely branched throughout, the branches slender, sparsely furfuraceous, often red; leaves numerous, imbricate near the ends of the branches, alternate, sessile, the blades broadly ovate to lance-oblong, 3-8 mm. long, acute or acuminate, rounded or obtuse at the base, entire, furfuraceous; flowers monoecious, solitary or in 2's in the axils; calyx 5-cleft; fruiting bracts sessile, ovate, 1-2 mm. long, entire smooth, acute or acuminate, thin compressed; seed yellowish-brown, 1 mm. long, the testa thin and transparent, the radicle superior. - Standley, N. Amer. Flora 21(1): 51. 1916.

Range: SE. Oregon and N. Nevada. May-Sept.

Nevada: Elko, Eureka, Humboldt (type loc.) and Ormsby Cos.

Representative specimens: ELKO CO.: Battle Mt., Kennedy 3075 (NES-14397; US-692756); 4 km. west of Wells, H.M.Hall 11033 (RM 106385); EUREKA CO.: Beowawe, Mrs. Joseph Clemens (RM-96367); HUMBOLDT CO.: near head of Humboldt Valley, Watson 988 (TYPE), (US-55397); ORMSBY CO.: Carson City, Wooton (NA-195226); other Nevada specimens without exact localities: "Nevada", 1876, E.Palmer 454 (US-55398); "Nevada", 1880, C.C.Parry (US-938974).

14. ATRIPLEX SACCARIA S.Wats., Proc. Amer. Acad. 9: 112. 1874.

Syn.: Atriplex cornuta M.E.Jones, Proc. Calif. Acad. II. 5: 718. 1895; A. truncata var. saccaria Jones, Contr. West. Bot. No. 11:20. 1903; A. argentea var. cornuta Jones, l.c.: 21 (Standley, in N. Amer. Flora 21(1): 45. 1916 gives this synonym as A. expansa cornuta M.E.Jones, Contr. West. Bot. 11: 21. 1903).

Annuals, the stems copiously branched throughout to form a globose outline, 10-30 cm. tall, stout, angled, roughly furfuraceous; leaves 1-3 cm. long, all petiolate or some sessile upwards, broadly cordate-ovate or subreniform, cordate or some broadly truncate at the base, acute at the apex, entire, thick (but drying thin), gray or white-scurfy; flowers monoecious, the staminate glomerules in the upper axils or in short naked terminal spikes, the pistillate flowers mostly in fascicles of 1-3 in the lower axils; calyx 5-cleft; fruiting bracts of two kinds, united at summit; the smaller ones 3 mm. long, oblong or cuneate, truncate or emarginate at the apex, toothed only at the summit, the faces smooth usually; the larger bracts up to 6 mm. long, united at the base, rounded-triangular or suborbicular, irregularly or coarsely dentate, the sides very irregularly and densely crested or dentate over the whole surface; seed brown, 1.5-2.2 mm. long, the radicle superior.

Range: SW. Wyoming and E. Utah to Nevada and NE. Arizona and NW. New Mexico.

Nevada: Cited in Harrington, Man. Pl. Colo., p. 207. 1954; Rydb., Fl. Rocky Mts., p. 247. 1922 (1954 ed.); no specimens seen.

15. ATRIPLEX TRUNCATA (Torr.) Gray, Proc. Amer. Acad. 8: 398. 1872; Standl., N. Amer. Flora 21(1): 49. 1916. (Map 22)

Syn.: Obione truncata Torr.; S.Wats., Bot. King's Expl. 291. 1871; Atriplex truncata var. stricta Gray, Proc. Amer. Acad. 8: 398. 1872; A. subdecumbens Jones, Proc. Calif. Acad., ser. 2, 5: 716. 1895.

Annuals, stems up to 1 m. tall, usually erect, branched or simple, the branches angled, lightly furfuraceous, soon becoming glabrate; leaves sessile or the lower ones short-petioled, 1-4 cm. long, deltoid, triangular-ovate or rounded-ovate, truncate, subhastate or rarely rounded at the base, acute or obtuse at the apex, entire or only undulate, rather thin, gray-furfuraceous especially beneath; flowers monoecious; the pistillate and staminate flowers usually together near the middle of the plant, inflorescence leafy; fruiting bracts 2-3.5 mm. long, united to the apex, broadly-cuneate to the truncate apex, margined only at apex and here 2- to 4- toothed, the faces smooth or with 1 or 2 small tubercules; seed 1.5 mm. long, the radicle superior.

Range: Alkaline flats. May-Aug. Wyoming to British Columbia, S.-ward to California and NW. New Mexico.

Nevada: Elko, Humboldt, Lander, Nye, Pershing, Washoe (type loc.) and White Pine Cos.

Representative specimens: ELKO CO.: Ruby Valley near Cave Creek P.O., Heller 9527 (NES-14638); Battle Mt., Kennedy 4000 (NES-14415; US-692761); Battle Mt., A.E.Hitchcock 576 (US-692911); Hitchcock 577 (US-692912); HUMBOLDT CO.: Winnemucca, Griffiths & Morris 53 (US-402550); Big Creek Ranch, Griffiths & Morris 184 (NA-41698); along Humboldt River, vic. of Winnemucca, Hester 1271 (NA-289594); LANDER CO.: Smoke Creek, Griffiths & Hunter 509 (US-505712); above Ravenwood, about 28 mi. from Austin, Goodner & Henning 876 (NA-

71913); Skull Creek, 3 mi. W. of Grass Valley Ranch, Goodner & Henning 1123 (RENO-4835; NA-71970 (1123 A)); NYE CO.: near Golden Eagle Mill Foundation, 15 mi. NW. of Ione, Beach 1029 (NA-290861); San Antonio Desert, May-Oct. 1898, C.A.Purpus 6418 (US-345144); PERSHING CO.: 10 mi. S. of Lovelock, T.L.Preene & H.Sampson 52 (NS-71919); WASHOE CO.: TYPE LOCALITY, along Truckee River, W.W.Bailey 987 (US-55390); E. and SE. of Reno, July 1894, Hillman (NES-2359); Reno, Aug. 12, 1894, Hillman (NES-2360); Sparks, vic. of Reno, A.E.Hitchcock 437 (US-692908); streets and vacant lots, Reno, Archer 5735 (NA-71889); near Pyramid Lake, Tidestrom 10677 (RM-92786); WHITE PINE CO.: Ely, A.E.Hitchcock 1346 (US-692949).

16. ATRIPLEX ROSEA L., Sp. Pl., ed. 2, 1493. 1753. (Map 26)

Syn.: Atriplex alba Scop., Delic. Insub. 2: 16. 1787 (not A. alba Crantz, 1766); Teutliopsis rosea Celak., Oesterr. Bot. Zeits. 22: 169. 1872; Atriplex spatiosa Nels., Bot. Gaz. 34: 360. 1902.

Annuals, stems up to 2 m. tall, erect, simple or branched from the base; leaves all alternate, 2-6 cm. long, sessile or petioled, ovate or rhombic to lanceolate, cuneate or rounded at the base, acute or obtuse at the apex, remotely sinuate-dentate, thinly or densely furfuraceous, rather thick, often turning red; plants monoecious; the staminate and pistillate flowers usually together in the middle, mostly in axillary capitate clusters, some in terminal spikes; fruiting bracts 4-6 mm. long, united usually to the middle, rhombic or ovate from a broad base, the margin dentate, the sides warty; seed dark-brown, dull, orbicular, 1.5-2 mm. diam., the radicle inferior.

Range: Native of S. Europe; in United States, Wyoming to Washington, S. to S. California and Mexico; adventive from New York to Florida; N. Asia; N. Africa; Australia. July-Nov.

Nevada: Elko, Lander and Washoe Cos.

Representative specimens: ELKO CO.: vic. of Ruby Lake Refuge, George Dick 73 (NA-235423); Clover Creek enclosure, Robertson 272 (NA-256910); along railroad, Battle Mt., A.E.Hitchcock 585 (US-692914); LANDER CO.: 18 mi. S. of Austin, Henning 79 (NA-71906); WASHOE CO.: Reno, Petersen 465 (NES-14637)

17. ATRIPLEX SERENANA Nels., Proc. Biol. Soc. Wash. 17: 99. 1904; Standl., N. Amer. Flora 21(1): 52-53. 1916. (Map 27)

Syn.: Obione bracteosa Durand & Hilgard, Pacif. R.R.Rep. 5(3): 13. 1858; Atriplex bracteosa Wats., Proc. Amer. Acad. 9: 115. 1874 (not A. bracteosa Traut., 1870).

Erect or decumbent annual, 3-10 dm. high, usually much-branched, the branches stout, obtusely angled, furfuraceous when young, glabrate in age; leaves numerous, alternate, sessile or subsessile, the blades oblong, oval or lance-oblong, 1.5-8.5 cm. long, 0.4-4.0 cm. wide, obtuse or acute at the apex, mucronate, cuneate at the base, acutely dentate, or the upper blades mostly entire, thin, sparsely farinose, the leaves appearing green or grayish-green; flowers monoecious, the large staminate glomerules in dense or interrupted, narrowly paniculate or rarely simple, naked spikes; calyx deeply 5-cleft; pistillate flowers in few-flowered axillary clusters; fruiting bracts cuneate-orbicular, 2-3 mm. long, united below, the herbaceous margins deeply dentate, the terminal tooth usually longer than the lateral ones, the sides usually conspicuously tuberculate; seed 1-1.5 mm. long, brown, the radicle superior.--Standl., N. Amer. Flora 21(1): 52-53. 1916.

Range: Centr. California and W. Nevada to N. Lower California.

Apr.-Oct.

Nevada: WASHOE CO.: Laughton Springs, near Reno, July 9, 1894, Hillman (NES-2343) and Aug. 9, 1894, Hillman (US-694153); Virginia Street in Reno, Lehenbauer 1532 (RENO-4756); streets and vacant lots, Reno, Archer 5733 (NA-71949); Reno, Petersen 464 (NES-14640, bracteose form) and 466 (NES-14639, extreme form).

18a. ATRIPLEX ARGENTEA (ssp. ARGENTEA) Nutt., Genera 1: 198. 1818.

(Map 23)

Syn.: Obione argentea Torr., Bot. Mex. Bound. Surv. 182. 1859 (not O. argentea Moq., Chenop. Enum. 76. 1840); Atriplex expansa Wats., Proc. Amer. Acad. 9: 116. 1874; A. argentea ssp. typica Hall & Clements, Phylog. Meth. Tax. 284. 1923; A. argentea ssp. expansa (S.Wats.) Hall & Clements, l.c., pl. 44. 1923.

Annuals, up to 80 cm. tall, erect, branching from the base, the plants usually globose in outline, branches rather stout, angled, furfuraceous when young; leaves 2-5 cm. long, sessile, subsessile or petiolate, lanceolate, ovate or deltoid, cuneate or subhastate at the base, obtuse or subacute at the apex, entire or repand-dentate, moderate in thickness, gray-furfuraceous, sometimes glabrate; flowers monoecious, staminate and pistillate flowers mixed in clusters at least at middle of plant, axillary; fruiting bracts 4-8 mm. long and as wide, suborbicular, usually deeply toothed and with projections on the faces or smooth.

Range: Alkaline waste places. April-Sept. W. North Dakota to California S. to New Mexico.

Nevada: Churchill, Clark, Elko, Lander, Lincoln, Mineral, Nye and Washoe Cos.

Representative specimens: CHURCHILL CO.: 13 mi. SE. of Fallon, R.A.Allen 416 (NA-71787); vic. of Eastgate, Goodner & Henning 1316 (NA-154011 and 92745); CLARK CO.: Colorado River bank, near Newberry Mts., Train 1399 (NA-71818); ELKO CO.: Goose Creek Valley, Sept. 1868, Watson 985 (US); LANDER CO.: Skull Creek, 3 mi. W. of Grass Valley Ranch, Goodner & Henning 1123 (NA-71825); LINCOLN CO.: E. of Pioche, Galway 8252 (US-1925528); Pahranagat Valley, LaRivers & Hancock 756 (NA-71910); Pony Springs, 30 mi. N. of Pioche, LaRivers & Hancock 774 (NA-73642); 7 mi. N. of Caliente, LaRivers & Hancock 664 (NA-71782); 11 mi. SSW. of Caliente in Kershaw Canyon, LaRivers & Hancock 685 (NA-71820); Hiko Springs, Pahranagat Valley, LaRivers & Hancock 695 (NA-71802); MINERAL CO.: 15-17 mi. N. of Hawthorne in Cottonwood Canyon, Henning 257 (NA-71793); W. side of Walker Lake, Archer 7136 (NA-71772); NYE CO.: Broad Creek, W. of Darrough Hot Springs, Goodner & Henning 1172 (NA-94832 and 71771); about 1/2 mi. S. of Roger's Ranch, Goodner & Henning 282 (NA-71770); WASHOE CO.: streets and vacant lots, Reno, Archer 5731 (NA-71795); 4 mi. N. of Reno, Archer 5790 (NA-94836); streets of Reno, Archer 5793 (NA-71801); Charles Sheldon Game Refuge, Greenway 98 (NA-79658).

18b. ATRIPLEX ARGENTEA var. CAPUT-MEDUSAE (Eastw.) Fosberg, Amer. Midl. Nat. 26: 693. 1941. (Map 23)

Syn.: Atriplex caput-medusae Eastw., Proc. Calif. Acad. II. 6: 316. 1896; A. argentea var. hillmani Jones, Contr. West. Bot. 11: 21. 1903 (TYPE: Reno, Nev.); A. hillmani (Jones) Standl., N. Amer. Flora 21(1): 48. 1916; A. argentea ssp. typica var. caput-medusae (Eastw.) Fosberg, Amer. Midl. Nat. 26: 693. 1941.

Annuals, with erect stems, branching from the base, 4-5 dm. tall, much branched; leaves petioled, blades thin, deltoid or hastate; staminate flowers few, mixed with the pistillate ones; fruiting bracts orbicular, becoming hard, 4-5 mm. long, thickly beset with flat horny acuminate appendages. Sometimes this smaller form is not considered separable from the species.

Range: River banks and damp places, rarely in dry areas. June-Oct. SW. Colorado to Utah and Nevada, S. to New Mexico and Arizona.

Nevada: Churchill, Elko, Humboldt, Lander, Lincoln, Mineral, Nye and Washoe Cos.

Representative specimens: CHURCHILL CO.: Fallon, L.L.Harter (US-1736019); Fallon, Curtis 25 (RENO-17665); Carson Sink Region, Kennedy 1772 (NES-9604); ELKO CO.: Battle Mt., Kennedy 4001 (US-692760); along railroad, Battle Mt., (perhaps Lander Co.), A.E. Hitchcock 586 (US-692915); HUMBOLDT CO.: Leonard Creek Ranch, Griffiths & Morris 346 (US-402673); 1-5 mi. E. of Daveytown, Train 184 (NA-71912); 20 mi. N. of Golconda, Robertson 150 (NA-290971); LANDER CO.: mouth of Skull Creek, Goodner & Henning 500 (NA-71899; RENO-4740); 35 mi. S. of Austin, Henning 326 (NA-71926); LINCOLN CO.: Crystal Springs along highway, Hermansen 77-H (NA-75423); MINERAL CO.: mouth of Cory Creek, Wassuk Range, Archer 6828 (NA-71896); NYE CO.: 4-6 mi. N. of Tonopah, Henning 184 (NA-71932); WASHOE CO.: English Mill, near Reno, July 11, 1893, Hillman (NES-2373); E. of Reno, Aug. 11, 1894, Hillman (NES-2342); Lemmon Valley, Kennedy 2081 (NES-14417; US-692758). (The Washoe Co. specimens are small and have been named A. Hillmani).

6. GRAYIA Hook. & Arn., Bot. Beech. Voy. 387. 1840.

Syn.: Eremosemium Greene, Pittonia 4: 225. 1900.

Erect, branched shrubs, sometimes spiny; leaves alternate, sessile, entire, somewhat fleshy, green; dioecious or rarely monoecious; staminate flowers in terminal spikes or axillary glomerules; stamens 4-5, perianth 4-5 parted, no bracts; pistillate flowers in terminal spikes, without a calyx, but with a pair of united bracts open at the summit and broadly winged dorsally in the fruit; pericarp free from the seed.

1. GRAYIA SPINOSA (Hook.) Moq., in DC., Prodr. 13(2): 119. 1849; Standl., N. Amer. Flora 21(1): 75. 1916. "hop sage"

(Map 8)

Syn.: Chenopodium spinosum Hook., Fl. Bor. Amer. 2: 127. 1838;

Grayia polygaloides Hook. & Arn., Bot. Beech. Voy. 388. 1840; Eremosemium spinosum Greene, Pittonia 4: 225. 1900.

Erect shrub, 3-12 dm. tall, much-branched, often spiny, usually pubescent when young, often glabrate in age, the herbaceous parts often scurfy, with reticulate whitish fibers over surface; leaves green, spatulate to oblanceolate, thick, 1.5-4 cm. long, rounded at the apex; fruiting bracts nearly orbicular, 6-12 mm. broad.

Range: Alkaline soil, Wyoming to Washington, NW. Colorado, and California and Nevada. Common in Nevada in saline soils of plains and foothills. March-Aug.

Nevada: Churchill, Clark, Elko, Eureka, Humboldt, Lander, Lyon, Mineral, Nye, Ormsby, Pershing, Storey and Washoe Cos.

Representative specimens: CHURCHILL CO.: 1 mi. W. of Eastgate, Mills & Beach 682 (NA-290405); CLARK CO.: Mica Springs, April 13, 1894, Jones 5045 (US-296402); near pass S. of Bunkerville, Tidestrom 9191 (US-1117357); 10 mi. S. of Searchlight, Train 1447 (NA-71880); Kyle Canyon Fan, Charleston Mts., Clokey 7911 (NA-91529; US-1785448); Goodsprings, S. end of Spring Mt. Range, Train 1938 (NA-71864); ELKO CO.: Little Lakes Canyon, near Stampede, Kennedy 550 (NES-2409); Starr Valley, 6 mi. E. of Deeth, N.E.Nichols & L.Lund 123 (NA-71861); Medicine Springs, H.B.Passey 123 (NA-291986); NW. of Clover Creek, Jos.H.Robertson & Y.M.Robertson 38 (NA-250071); EUREKA CO.: about 20 mi. W. of Eureka, Goodner & Henning 826 (NA-71879); HUMBOLDT CO.: Winnemucca, E.O.Wooton (US-794548); Griffiths & Morris 96 (NA-41684); Austin Gulch, Slumbering Hills, Train 172 (NA-71836); Winnemucca-Paradise highway, 6 mi. N. of dunes, Robertson 14 (NA-290970); mt. near Big Spring Reservoir, Sheldon Antelope Range, Murie 2648 (NA-250767); LANDER CO.: about 20 mi. W. of Austin, Goodner & Henning 436 (NA-71848); 1 mi. N. of Grass Valley Ranch, Goodner & Henning 503 (NA-71871); vic. of Trout Creek Ranch, about 20 mi. S. of Battle Mt., Goodner & Henning 915 (NA-71715); LYON CO.: Granite Mine, Winters 1617 (NA-81354); N. of Yerington, Carlson, Koch & Holstein N-23 (NA-75443); MINERAL CO.: along narrow gauge railroad to Mina, near California-Nevada Line, Wooton (NA-195100); 2-3 mi. from Schurz, Murphey 51 (NA-71755); NYE CO.: 24-25 mi. S. of US No. 50 near Nev. No. 8A, Goodner & Henning 1154 (NA-71847); ORMSBY CO.: secured by Indians near Stewart, Archer 5186 (NA-99883);

PERSHING CO.: Lovelock sand dunes, 1 mi. N. of Southern Pacific overhead on Victory Highway, Train 43 (NA-71842); East Humboldt Mts., July 1868, Watson 959 (US); also W. Humboldt Co., 5000 ft., May 1868, Watson 959 (US); STOREY CO.: 3 mi. SW. of Virginia City, R.A.Allen 192 (NA-71874); S. of Truckee River, 5 mi. W. of Wadsworth, Mills & Beach 189 and 190 (NA-290320); WASHOE CO.: near Reno, S.G.Stokes (US-404378); N. of University, Reno, P.B.Kennedy (NES-2416 & 2417); Reno, W. of Univ. Nev., P.B.Kennedy (NES-2405 & 14580); Reno, Cemetery Hill, W. of Univ. Nev., T.W.Cowgill (NES-2408, 2413, 2414; US-506209); N. of University, Reno, O.F.Heizer 338 (NES-2412); Truckee Pass, Virginia Mts., May 1868, Watson 959 (US); Kennedy (NES-2410); Lawton Springs, L.McDermott 23 (NES-13342); Winnemucca Lake, Kennedy 2043 (US-692764 & 692765); N. of Reno, Heller 9583 (US-508798 & NES-11804); Petersen 2 (NES-14634); Wooton (NA-195208); SW. of Reno, Petersen 19 (NES-14589); near Desert Inn, Pyramid Lake, Lehenbauer (NA-44705); W. side of Pyramid Lake, Archer 5097 (NA-71870) & 5098 (NA-71841); 2 1/2 mi. ESE. of Poeville, Tillotson 26 (NA-78004); betw. Wadsworth and Mud Lake, Kennedy 445 (NES-2411); 2-7 mi. N. of Wadsworth, Archer 6193 (NA-71872); Range Spring, 25 mi. SE. of Vya on Grass Valley Road, Train 2892 (NA-183514); 5.2 mi. NNE. Steamboat Springs, Adams 69 (NA-302517); 5.5 mi. ESE. Pyramid, Simontacchi 557 (NA-302500); other specimens: "Nevada", April 28, 1891, Hillman (NES-2407); "Nevada", 1876, J.F.Mohr & Prof. Lemmon (US-721940).

7. EUROTIA Adans., Fam. Pl. 2: 260. 1763.

Shrubs or suffrutescent herbs with densely white or brownish stellate-tomentose stems and leaves; leaves linear or narrowly oblong, strongly revolute, alternate, entire; dioecious or incompletely so (polygamous), the flowers in axillary glomerules or in terminal spike-like clusters; staminate flowers with 4-parted villous perianth, 4 stamens; pistillate flowers without perianth, enclosed by a pair of long, villous bracts which are united into a villous 2-beaked tube, connate below, accrescent and enclosing the utricle in fruit; finally dehiscent, styles 2; pericarp free from seed.

1. EROTIA LANATA (Pursh) Moq., Chen. Mon. Enum. 81. 1840; Standl., N. Amer. Flora 21(1): 76. 1916. "winterfat"

(Map 9)

Syn.: Diotis lanata Pursh, Fl. Amer. Sept. 602. 1814; Eurotia subspinosa Rydb., Bull. Torr. Bot. Cl. 39: 312. 1912; Standl., N. Amer. Flora 21(1): 75. 1916.

Plant 2-8 dm. tall, shrubby only at base; branches stout, erect, densely stellate-pubescent, mixed with long hairs; leaves 1.5-5 cm. long, the margins revolute, sessile or short-petioled; fruiting panicles conspicuously pilose, appearing cottony, the indurate apices of bracts noticeable in the hair; seed erect, compressed. A valuable winter feed, especially for sheep.

Range: Dry plains and slopes, common. Saskatchewan to Washington, W. Kansas, California and N. Mexico. April-Sept.

Nevada: Churchill, Clark, Elko, Esmeralda, Eureka, Humboldt, Lander, Lincoln, Lyon, Mineral, Nye, Storey, Washoe and White Pine Cos.

Representative specimens: CHURCHILL CO.: between Fernley and Lovelock, Lehenbauer (NA-44759); near Whitman Ranch, vic. of East Gate, R.A.Allen 340 (NA-72007); 6 1/2 mi. SW. of Toy, Allen 448 (NA-71972); 1 mi. W. of Westgate, Mills & Beach 684 (NA-290401); CLARK CO.: near Searchlight, J.Sterling (NES-14409; 14410); Piute Valley, 7 mi. SE. Searchlight, Gullion 334 (NA-302518); Erie, Tidestrom 8870 (NA-83961); Kyle Canyon Fan, Clokey 7775 (NA-81715); 10 mi. S. of Searchlight, Train 1446 (NA-71860); near Kyle Canyon Fan, Charleston Mts., Clokey 7908 (NA-91507; US-1785445); in Valley of Fire, Boulder Dam State Park, Train 1895 (NA-71849); 4 mi. NE. of Las Vegas, Barkley & Reed 4109 (NA-100076); ELKO CO.: bet. Wells and Humboldt Wells, Heller 9193 (NES-9865; NA-612269); 6 mi. SW. of Medical Springs, B.Martineau 120 (NES-15456); 38 mi. E. of Wells, Robertson & Robertson 109 (NA-290986); Elko, S. side of town, Vanderwal 236 (NA-236892); ESMERALDA CO.: Goldfield, Heller 10415 (NES-13235); EUREKA CO.: 6 mi. N. of Beowawe, Kennedy 507 (NES-2402); vic. of Alpha, Goodner & Henning 547 (NA-71753); HUMBOLDT CO.: Big

Creek, Griffiths & Morris 190 (NA-41682); 5 mi. S. of Sod House, Quinn River Valley, Train 134 (NA-71996); betw. Wheeler Ranch and Soldier Creek, Murphey 605 (NA-226281); LANDER CO.: Toiyabe National Forest, J.A.Cahill (NES-14642); Tobe Roger's Ranch, 50 mi. S. of Austin, Murphey 471 (NA-71984; NA-226261); 20 mi. S. of Cortez, Goodner & Henning 1113 (NA-71981); LINCOLN CO.: Muddy Valley, Kennedy & Goodding (NES-6752; NES-8315); White Sage Valley, W. of Delamar road on highway from Caliente to Crystal Springs, Train 2434 (NA-71873); LYON CO.: NE. of Yerington, R.A.Allen 244 (NA-71983); SW. of Yerington, Holstein, Koch & Carlson N-99 (NA-75407); MINERAL CO.: about 3 mi. below head of Cottonwood Canyon, Henning 289 (NA-72004); Queen Canyon, White Mts., Archer 7172 (NA-71884); NYE CO.: Johnnie, Sterling (NES-14400); Rhyolite, Heller 8653 (NES-11989); 3-12 mi. S. of Darrough's Hot Springs, Goodner & Henning 1190 (NA-291908); 2-5 mi. below mouth of N. fork of Twin Rivers, Henning 151 (NA-71875); 13-15 mi. SE. of Manhattan, Henning 168 (NA-71963); near Golden Eagle Mill Foundation, 2 mi. NW. of Penelas Mill, Beach 875 (NA-291886; US-2130681); STOREY CO.: 7 mi. ENE. of Hoffaker, Adams 109 (NA-95273); 5 mi. W. of Wadsworth, Mills & Beach 1094 (NA-290356); WASHOE CO.: E. of English Mill, Reno, July 6, 1893, Hillman (NES-2401); Wadsworth, July 9, 1897, Hillman (NES-14554); Wadsworth, Kennedy 924 (NES-2404); Train 6 (NA-71852); 2-7 mi. N. of Wadsworth, Archer 6187 (NA-71862); Charles Sheldon Game Refuge, Greenway 126 (NA-79642); 0.7 mi. W. Indian Rock, Simontacchi 536 (NA-302499); WHITE PINE CO.: region of Spruce Mt. to McGill along Steptoe Valley, Train 968 (photo of plant), NA-72003); Spring Valley, 3 mi. E. of Conners Pass, Train 1122 (NA-71977).

8. KOCHIA Roth., in Schrad. Journ. Bot. 1800: 307. 1801.

Annual or perennial herbs or subshrubs; leaves narrow, often terete, entire, alternate or fascicled; flowers usually perfect, axillary, sessile, solitary or in small glomerules; calyx 5-cleft, persistent; stamens 3-5, exserted; ovary subsessile, styles 2 or 3, filiform; embryo nearly annular, green; endosperm none.

KEY TO SPECIES AND VARIETIES

Annuals: leaves petiolate, the blades lance-linear, thin; calyx-wings minute.....K. SCOPARIA

Perennials; leaves sessile, the blades terete or linear-oblong,

succulent; calyx-wings large and conspicuous.....K. AMERICANA

Leaf-blades terete or nearly so; stems usually branched only from the base.

Stems and leaves densely and permanently sericeous-pilose; fruit densely hairy.....var. VESTITA

Stems and leaves soon glabrate; fruit nearly glabrous. var. AMERICANA

Leaf-blades linear-oblong, flat; stems paniculately branched. var. CALIFORNICA

1. KOCHIA SCOPARIA (L.) Schrad., Neues Journ. Bot. Schrad. 3(3): 85. 1809. "summer cypress"

Plant much-branched, the branches erect or ascending, 30-100 cm. tall, very leafy, glabrous or short-pilose, becoming bright red; leaves 2-7 cm. long, 3-8 mm. wide, those of the inflorescence smaller, sometimes pilose-sericeous; flowers sessile, clustered in the axils of the leaves, forming short, dense, leafy spikes; wings of the calyx triangular, obtuse, 0.6 mm. long or less; seed 1.5 mm. diam.

Range: Native of Europe; escaped from cultivation in many parts of the United States. June-Aug.

Nevada: Churchill and Washoe Cos.

Representative specimens: CHURCHILL CO.: La Verne Street, Fallon, June 10, 1932, Moon (RENO-17630); WASHOE CO.: corner of Holcomb and Cherry Streets, Reno, July 1913, Mrs. T.S.Brandegee (NES-1444 9).

2. KOCHIA AMERICANA S. Wats., Proc. Amer. Acad. 9: 93. 1874; Standl., N. Amer. Flora 21(1): 78. 1916. "red sage"

(Map 29)

Perennial, 1.5-5 dm. tall, much-branched from a woody base, the branches simple and erect, more or less densely villous-tomentose when young, often glabrate with age; leaves numerous, often fascicled, 6-25 mm. long, terete, fleshy, sericeous to glabrous; flowers solitary or in 2's or 3's; calyx densely white-tomentose or partly glabrate; wings fan-shaped, membranous, striate, toothed; seed 2 mm. diam.

Range: Alkaline plains and marshes. May-Oct. Wyoming and Colorado to NW. New Mexico and California. Type locality in W. Nevada.

Nevada: Churchill, Elko, Esmeralda, Humboldt, Lander, Lincoln, Mineral, Nye, Pershing and Washoe Cos.

Representative specimens: CHURCHILL CO.: Fallon, Harter (US-1736015); Humboldt Lake, June 17, 1882, Jones 4059 (US-222919); ELKO CO.: Battle Mt., Kennedy 3079 (NES-14419; US-692767); ESMERALDA CO.: Gold Mt., Oct. 1898, Purpus (US-874190); 1 mi. N. of Goldfield, Train 3441 (NA-156869); HUMBOLDT CO.: along railroad, Battle Mt., A.E.Hitchcock 640 (US-692927); 5 mi. S. of Denio, Oregon, in Humboldt Co., Nev., Train 35 (US-1838602); Black Rock Desert, Griffiths & Hunter 531 (US-505731); SE. end of Big Spring Table, Sheldon Antelope Range, Murie 2722 (NA-250780); LANDER CO.: 22-27 mi. E. of Austin, Goodner & Henning 584 (NA-71746); Frontier Tavern, 8 mi. SE. Austin, Gullion 408 (NA-302502); LINCOLN CO.: W. border Groom Dry Lake, road to Crystal Springs, Train 2374 (NA-71845); MINERAL CO.: W. slope Wassuk Range, vic. of Cory Peak, Archer 7280 (NA-71999); about 50 mi. W. of Tonopah, Henning 225 (NA-71687); NYE CO.: no locality, Aug. 10, 1940, Beach 818 (US-2130675); 13-15 mi. SE. of Manhattan, Henning 173 (NA-71700); Divide 6 mi. N. of Goldfield, Train 3442 (NA-156870); N. end Railroad Valley, 2 mi. E. of Duckwater, Train 1229 (NA-71735); 24-25 mi. S. of US No. 50 near No. 8A, Goodner & Henning 1153 (NA-71714); 2 mi. NW. of Peñelas Mill, 15 mi. NW. of Ione, Beach 818 (NA-291861); PERSHING CO.: Granite Creek Desert Rim, betw. Sulphur and Gerlach, Train 2589 (NA-

71869); WASHOE CO.: 20 mi. E. of Reno, Archer 6231 (NA-71883); Glendale, near Reno, Hillman (NES-14635); also, "Nevada", Lt. Wheeler 1872 (as Kochia prostrata Schrad.) (US).

3. KOCHIA AMERICANA var. CALIFORNICA Jones, Contr. West. Bot. No. 11: 19. 1903.

Syn.: Kochia california S.Wats., Proc. Amer. Acad. 17: 378. 1882; Standl., N. Amer. Flora 21(1): 77. 1916.

Perennial; stems few or many from a woody base, 1.5-5 dm. tall, erect, stout, obtusely angled and striate, simple at the base, paniculately branched above, the branches ascending or spreading, densely silky-tomentose or pilose with grayish hairs; leaves rather remote, sessile, the blades narrowly oblong or oblong-linear, 5-17 mm. long, 1.5-3 mm. wide, spreading, obtuse or acutish, flat, densely sericeous; flowers solitary or in clusters of 2-5, densely tomentulose; calyx in fruit 2 mm. diam., the wings flabellate, 2 mm. long, distinct, irregularly crenulate, scarious, finely nerved; seed 2 mm. diam.--Standl., l.c.: 77. 1916.

Range: S. California and W. Nevada.

Nevada: No locality, "Nevada", May 2, 1891, Coville & Funston 369 (US).

4. KOCHIA AMERICANA var. VESTITA S. Wats., Proc. Amer. Acad. 9: 93. 1874; Davis, Flora of Idaho, p. 267. 1952. (Map 30)

Syn.: Kochia vestita (S.Wats.) Rydb., Fl. Colo. 119. 1906; Standl, N. Amer. Flora 21(1): 77. 1916.

Perennial, erect from a woody base; stems numerous, 1-4 dm.

tall, mostly simple, sometimes with a few erect branches above, densely villous-tomentose; leaves erect or ascending, sessile, the blades terete, fleshy, 7-25 mm. long, densely sericeous; flowers solitary or in 2's or 3's, densely tomentose; calyx in fruit 2 mm. diam., the wings distinct, broadly flabellate, 1.5 mm. long, crenulate; utricle densely tomentose; seed 1.5 mm. diam.--Standl., l.c.: 77. 1916.

Range: Alkaline plains and marshes. May-Sept. Wyoming and Colorado to Oregon and N. California, through Nevada.

Nevada: Elko, Esmeralda, Humboldt, Lyon, Pershing, Churchill and Washoe Cos.

Representative specimens: ELKO CO.: Air Beacon Knoll, 4 mi. W. of Wendover, Train 3797 (NA-278851); 1/2 mi. N. of Wendover, Holmgren 2037 (NA-291525); ESMERALDA CO.: below Goldfield and Lida, Tidestrom 9806 (US-1117457); NE. branch Fish Lake Valley, near Gap Spring, Archer 7248 (NA-71881); HUMBOLDT CO.: 5 mi. S. of Soldier Meadows Ranch NW. Humboldt Co., Train 3092 (NA-183854); LYON CO.: Wilson Canyon, Lehenbauer (NA-75363); PERSHING-CHURCHILL CO.: Humboldt Lake, July 22, 1873, Mrs. E.E.Atwater (US-721947); WASHOE CO.: E. of English Mill, Reno, July 11, 1893, Hillman (NES-2427); Boat Corral, NW. Nevada, July 28, 1896, Coville & Leiburg 75 (US-276391); Truckee Pass, Virginia Mts., Kennedy 767 (NES-2428); 0.8 mi. N. of Clarks, Saarni 117 (NA-79571).

Since the characteristics of Kochia americana vary considerably, no clear distinction can be drawn between it and K. vestita and K. californica. Likewise, the characteristics for these other species are also variable. For these reasons, the three entities have been considered together as varieties of Kochia americana.

9. BASSIA All., Misc. Taur. 3: 177. 1766; 5: 93. 1776; Harrington, Man. Pl. Colo., p. 210. 1954.

Syn.: Echinopsilon Moq., Ann. Sci. Nat. II. 2: 127. 1834; Abrams, Ill. Fl. Pac. States, 2: 90. 1944.

Annual herb, much-branched, villous; leaves narrow, entire, alternate; spikes woolly bracteate; flowers sessile, mostly perfect, solitary or glomerate in the axils; perianth 5-toothed, the teeth forming hooked spines with age; stamens 5, exserted; style 1, with 2 or 3 stigmas; utricle enclosed in the perianth; pericarp free from seed.

1. BASSIA HYSSOPIFOLIUM (Pall.) Kuntze, Rev. Gen. Pl. 1: 547. 1891; Davis, Flora of Idaho, p. 262. 1952. (Map 6)

Syn.: Salsola hyssopifolia Pallas, Reise 1: 491. 1771; Suaeda hyssopifolia Pallas, Ill. Pl. 44, t. 36. 1803; Echinopsilon hyssopifolium (Pall.) Moq., in DC., Prodr. 13(2): 135. 1849; Kochia hyssopifolia Boiss., Fl. Orient. 4: 926. 1879.

Stem erect, 6-12 dm. tall, more or less virgately branched, tomentose and villose, annual; leaves numerous, alternate, sessile, linear to oblanceolate, or narrowly oblong, obtuse to acute, 1-3 cm. long, reduced above, green or grayish-green, silky-villous to appressed pilose; spikes numerous; flowers about 1 mm. broad, perianth densely woolly, the teeth (5), becoming prolonged into red hooked spines in the fruit; utricle with a transverse wing; seed grayish-brown, dull.

Range: An Asiatic plant introduced in W. United States. Weed in waste places, especially if alkaline. June-Sept.

Nevada: Churchill, Elko, Humboldt, Lander, Lincoln, Lyon,

Mineral, Nye, Pershing, Storey and Washoe Cos.

Representative specimens: CHURCHILL CO.: Fallon, Kearney (US-1110973); near U.S.Experiment Station, Fallon, Tidestrom 10755 (NA-41633, 41632, 88247; US-1086457); Newlands Experiment Station, Fallon, Headley (NA-86554, 41673; US-1288175); Fallon, July 12, 1933, Moon (RENO-17653); Experiment Station, Fallon, (RENO-17545); 3 mi. S. of Toy, R.A.Allen 451 (NA); 13 mi. SE. of Fallon, Allen 415 (NA-71858); vic. Eastgate, Goodner & Henning 1320 (NA-71859); 1 mi. E. of Fallon, C.L.Hitchcock, R.Rethke & R.vanRaadshooven 4637 (NA-100526); ELKO CO.: 7 mi. N. of Currie, Train 969 (NA-71850); HUMBOLDT CO.: 3 mi. S. of Paradise Valley, Robertson 236 (NA-256922); LANDER CO.: vic. of Humboldt River near Battle Mt., Goodner & Henning 999 (NA-71898); 10 mi. W. of Austin, Goodner & Henning 1294 (NA-71888); LINCOLN CO.: N. of Caliente, highway No. 93, Hermansen 264 H (NA-75425); LYON CO.: Yerington, P.B.Dickey D-759 (NA-99975); near Yerington, Vanderwal 253 (NA-236895); MINERAL CO.: S. end Walker Lake, Archer 6959 (NA-71955) and 6963 (NA-71866); E. slope Wassuk Range, above Cory Canyon, Archer 6988 (NA-71855); NYE CO.: Golden Eagle Mill Foundation, 15 mi. NW. of Ione, Beach 1031 (NA-290359); PERSHING CO.: 10 mi. S. of Lovelock, Breene & Sampson 53 (NA-71868); STOREY CO.: 6 mi. Canyon, 4 mi. E. of Virginia City, R.A.Allen 524 (NA-71957); WASHOE CO.: streets Reno, Archer 5795 (NA-71918); about 5 mi. SW. of Reno, Archer 5846 (NA-71920) 3.3 mi. SW. of Spanish Springs, Hendrix 878 (NA-79548); Charles Sheldon Game Refuge, Greenway 125 (NA-79620).

10. CORISPERMUM L., Sp. Pl. 4. 1753.

Annual herbs, with alternate sessile, narrow, entire, 1-nerved leaves, the branches diffusely branched; flowers solitary, small, perfect, bractless, in terminal narrow leafy spikes, the upper leaves shorter and broader than the lower ones; calyx of 1-3 sepals, unequal, scarious; stamens 1-3, rarely 5, one of them longer, hypogynous; filaments dilated; ovary 1-celled, ovoid, with 2 styles; utricle ellipsoid, more or less flattened, acutely margined or winged; seed vertical with the pericarp adherent; endosperm fleshy; embryo annular, its radicle pointing downward.

1. CORISPERMUM EMARGINATUM Rydb., Bull. Torr. Bot. Cl. 31: 404. 1904; Standl., N. Amer. Flora 21(1): 80. 1916.

Plants glabrous; stem branched near the base, 3-4 dm. tall; leaves narrowly linear, 2-4 cm. long, 1-2 mm. wide, cuspidate-pointed; bracts except the lowest, ovate, 5-7 mm. long, acuminate, scarious-margined; fruit 2.5-3 mm. long and about 2 mm. wide, the margins acute or very obscurely winged.

Range: Sandy valleys. Alberta to Colorado and Nevada; adventive in W. Missouri.

Nevada: No specimens have been seen. References to Nevada: Standl., N. Amer. Flora 21(1): 80. 1916; Rydb., Flora Rocky Mts., p. 244. 1922; Tidestrom, Flora of Utah and Nevada, 1925.

2. CORISPERMUM VILLOSUM Rydb., Bull. Torr. Bot. Cl. 24: 191. 1897; Standl., N. Amer. Flora 21(1): 80. 1916.

Plant more or less villose; stem 2-4 dm. tall, diffusely branched from near the base; leaves linear, 2-4 cm. long, 1-3 mm. wide, cuspidate-mucronate; spikes rather dense; bracts more or less imbricate, the lower linear-lanceolate, 5-10 mm. long, the upper ones ovate, acuminate, 4-5 mm. long, with broad scarious margins; fruit 2.5-3 mm. long, 2 mm. wide, the margins acute or very obscurely winged.

Range: Sandy fields. Saskatchewan to Washington and northern New Mexico.

Nevada: No specimens have been seen. Reference to Nevada: Rydberg, Flora of Rocky Mts., p. 245. 1922.

11. ALLENROLFEA O. Kuntze, Rev. Gen. Pl. 545. 1891.

Syn.: Spirostachys S. Wats., Proc. Amer. Acad. 9: 125. 1874. (non Sonder, 1850).

Shrubs or at least woody at base, branchlets fleshy, green; leaves alternate, reduced to scales; flowers sessile with fleshy peltate bracts in dense cylindrical spikes, perianth much reduced, obpyramidal, fleshy, angled, usually 4-5 lobed; stamens usually 2, exserted; styles 2-3; utricle enclosed in spongy fruiting calyx, pericarp membranous, free.

1. ALLENROLFEA OCCIDENTALIS (S.Wats.) Kuntze, Rev. Gen. Pl. 546. 1891; Standl., N. Amer. Flora 21(1): 81. 1916. (Map 2)

Syn.: Halostachys occidentalis S.Wats., Bot. King's Expl. 293. 1871; Spirostachys occidentalis S.Wats., Proc. Amer. Acad. 9: 125. 1874; Salicornia occidentalis Greene, Fl. Fran. 173, 1891.

Much-branched, branchlets very fleshy, cylindrical, slightly glaucous; leaf-scales triangular, early deciduous; spikes up to 2.5 cm. long, 2.5-4 mm. thick; seed brown, about 0.6 mm. long.

Range: Alkaline places. Apr.-Sept. Oregon to W. Texas, Sonora and Lower California.

Nevada: Churchill, Clark, Eureka, Humboldt, Lander, Lincoln and Lyon Cos.

Representative specimens: CHURCHILL CO.: Lake Carson, Tidestrom 10781 (US-1221142); 13 mi. SE. of Fallon, Allen 406 (NA-73643); Canvasback Club, Stillwater, Mills 11 (NA-290382); CLARK CO.: Bunkerville, Jones 5029 (US-271020); Vegas Wash near Colorado River, Tidestrom 8975 (US-1117308); St. Thomas, Train 1908 (NA-71950); EUREKA CO.: Beowawe, Kennedy 823 (NES-2421); HUMBOLDT CO.: Black Rock Desert, Griffiths & Hunter 515 (US-505717); Sod House, Quinn

River Valley, Train 129 (NA-73618); LANDER CO.: about 6 mi. S. of Battle Mt., Goodner & Henning 929 (NA-73683); LINCOLN CO.: Valley of Virgin River, May 6, 1891, V. Bailey 1921 (US); LYON CO.: E. of Fernley, Lovelock highway, Lehenbauer (NA-44666).

12. SALICORNIA L., Sp. Pl. 3. 1753.

Succulent annual or perennial herbs with jointed stems, the branches opposite; leaves scale-like, opposite; flowers in spikes, perfect or polygamous, sunk in the cavities of the internodes, 3-7 together on opposite sides of the joints, partly covered by the sheathing, fleshy bracts; calyx fleshy, with a 3-4-toothed or truncate border; stamens 2, rarely 1, with filiform or subulate filaments; fruit an oblong or ovoid utricle, included in the spongy perianth; seeds erect, lacking endosperm.

1. SALICORNIA RUBRA Nels., Bull. Torr. Bot. Cl. 26: 122, 1899; Standl., N. Amer. Flora 21(1): 84. 1916. "western samphire" (Map 28)

Syn.: Salicornia rubra prona Lunell, Amer. Midl. Nat. 1: 236. 1910.

Annual, with taproot; stem erect, divaricately branched throughout, 1-2 dm. tall; leaves scale-like, short, broadly triangular, wider than long; flowering spikes 1-5 cm. long, the numerous joints about as broad as long; flowers in groups of threes, the central one taller; utricle obscurely covered with short curved hairs. The whole plant turning red with age.

Range: Very saline wet soil. July-Nov. W. Kansas and Nebraska to Saskatchewan and Nevada.

Nevada: Churchill, Lyon and Washoe Cos.

Representative specimens: CHURCHILL CO.: Fernley-Lovelock, Lehenbauer 1546 (RENO-4934); 5 mi. W. of Fallon, Train 466 (US-1898454); Hot Springs Playa E. of Fernley, V.Woodbury (RENO 14998); near Humboldt Lake, L.R.Abrams 13565 (US-1588086); LYON CO.: 4 mi. NE. of Fernley, Billings 2008 (RENO-12146); WASHOE CO.: Glendale, Kennedy 1197 (NES-6428 and 6430; US-505959); Spanish Springs, Kennedy 1947 (NES-13680; US-509642); Glendale, Kennedy (NES-13677); Gerlach, Wooton (NA-195225 - distributed as S. europea).

13. SARCOBATUS Nees, in Neuwied., Reise Nord-Amer. 1: 510. 1839.

Syn.: Fremontia Torr. in Frém. Rep. 91. 1843 (non Torr. 1854).

Rigidly branched, often spinose shrubs; leaves linear to clavate, very fleshy, usually dioecious, staminate flowers in terminal, cone-like spikes, pistillate flowers axillary; calyx winged, strongly accrescent and conspicuously winged in fruit.

1. SARCOBATUS VERMICULATUS (Hook.) Torr. in Emory, Notes Mil. Rec. 150. 1858; Standl., N. Amer. Flora 21(1): 85. 1916. (Map 4)

Syn.: Batis vermiculatus Hook., Fl. Bor. Amer. 2: 128. 1838. Sarcobatus maximiliani Nees in Neuwied, Reise Nord.-Amer. 1: 510. 1839; Fremontia vermiculatus Torr. in Frém. Rep. 91. 1843.

Much-branched, spiny shrub, 6-30 dm. tall, the older stems grayish, the younger yellowish-white, glabrous or with white branched hairs; leaves 5-30 mm. long, glabrous or sparsely pubescent, linear or slightly spatulate; staminate aments 7-30 mm. long, the scales orbicular; axis of pistillate flowers occasionally prolonged and then bearing 1-3 staminate flowers; fruit 4-5 mm. long, the wings 5-13 mm. long. Browsed by stock.

Range: W. North Dakota to Alberta, Washington, California and New Mexico. May-Sept.

Nevada: Churchill, Elko, Humboldt, Lander, Lincoln, Lyon, Mineral, Nye, Ormsby, Storey, Washoe and White Pine Cos.

Representative specimens: CHURCHILL CO.: 4 mi. E. of Eastgate, Goodner & Henning 678 (NA-71708); ELKO CO.: Tuscorora Flats, Kennedy 613 (NES-2420 & 14560); Ruby Valley, near Cave Creek P.O., Heller 9473 (NES-9868; US-612356); HUMBOLDT CO.: Leonard Creek, Griffiths & Morris 353 (NA-41612); Quinn River Crossing, Griffiths & Morris 281 (NA-41614); Quinn River bottom, Train 158 (NA-71676); McDermitt Indian Reser., 10 mi. W., in Quinn River Valley, Train 440 (NA-71740); LANDER CO.: Battle Mt., A.E.Hitchcock 594 (US-692919) & 595 (US-692920); near Humboldt River, about 3 mi. E. of Battle Mt., Goodner & Henning 1049 (NA-71731 & 291087); 15-20 mi. W. of Austin, Goodner & Henning 1297 (NA-71739); 1 mi. N. of Grass Valley Ranch, Goodner & Henning 502 (NA); LINCOLN CO.: Caliente, Goodding 990 (US-485521); 9 mi. N. of Caliente, Hermansen 180-H (NA-75467); Caliente, Hermansen 271-H (NA-75462); 5 mi. S. of Crystal Springs on Alamo road, Train 2413 (NA-71843); LYON CO.: bridge at Wilson Canyon on road betw. Smith and Mason Valleys, Lehenbauer 190 (NA-71683); outskirts of Yerington, Archer 6756 (Specimens of this collection have more linear leaves than typical specimens), (NA-71839); MINERAL CO.: Cottonwood Canyon, Wassuk Range, Archer 7142 (NA-71838); NYE CO.: Beattie, Heller 10425 (NES-13234); about 1/2 mi. S. of Roger's Ranch, Goodner & Henning 283 (NA-71709); 2 mi. NW. of Penelas Mill (15 mi. NW. of Ione), Beach 979 (NA-291888); ORMSBY CO.: secured by Indians from vic. of Stewart, Archer 5213 (NA-217301); STOREY CO.: 13 mi. E. of Sparks, Goodner & Henning 12 (NA-71876); WASHOE CO.: Wadsworth, July 9, 1891, Hillman (NES-2419); Truckee Pass, Kennedy 1598 (US-506075; NES-7580); Steamboat Springs, Heller 10365 (NES-12064); near Steamboat Springs, 10 mi. S. of Reno, Miller 109 (NA-71729); Reno Hot Springs, 11 mi. S. of Reno, Archer 6008 (NA-71854); Pyramed Lake Road, Olga Reifschneider 217A (NA-302520); WHITE PINE CO.: Duck Creek, near Ely, A.E.Hitchcock 1437 (US-692951); Snake Creek along Snake Range, Train 1174 (NA-71856).

2. SARCOBATUS VERMICULATUS var. BAILEYI (Cov.) Jeps., Fl. Calif. 446. 1914. (Map 5)

Syn.: Sarcobatus baileyi Cov., Proc. Biol. Soc. Wash. 7: 77. 1892; Standl., N. Amer. Flora 21(1): 86. 1916.

This variety differs from the typical plants in the following

ways: leaves stellate-pubescent, usually 1 cm. or less in length; staminate spikes usually less than 1 cm. long; fruiting calyx usually well over 1 cm. across. In typical plants: leaves glabrous, usually over 15 mm. long; staminate spike usually over 1 cm. long when mature; fruiting calyx usually less than 1 cm. across.

Range: Dry slopes and plains. E. California and W. Nevada; SW. Colorado. May-Aug.

Nevada: Churchill, Esmeralda, Humboldt, Lyon, Mineral, Nye (Type loc.), Storey and Washoe Cos.

Representative specimens: CHURCHILL CO.: 2 mi. N. of Eastgate, R.A.Allen 360 (NA-71754); 3 mi. S. of Toy, Allen 435 (NA-71857); Indian Lake area, 12 mi. NE. of Fallon, Mills (NA-291178); ESMERALDA CO.: Fish Lake Valley, June 8, 1891, V.Bailey, F.V.Coville & F.Funston 2011 (US); Fish Lake Falley, May-Oct. 1898, Purpus (US-348111); May 18, 1899, A.W.Turner (US-340159 & 344000); along California-Nevada Line, N. of Oasis, Maguire & Holmgren 25274 (US-1886979); HUMBOLDT CO.: Black Rock Desert, July 7, 1898, V.Bailey 124 (US-443369); 5 mi. S. of Wheeler Ranch, N. arm of Black Rock Desert, Train 3112 (NA-183911); LYON CO.: 20 mi. NE. of Yerington, R.A.Allen 223 (NA-71817); MINERAL CO.: Queen, Wooton (NA-195238); 2-3 mi. from Schurz, Murphey 52 (NA-71882); 3 mi. E. of Mt. Etna, Wieslander 804 (NA-99922); NYE CO.: Sarcobatus Flat, Ralston Desert (TYPE LOCALITY), June 2, 1891, Bailey, Coville & Funston 1994 (US-TYPE No. 743), (in Standley, N. Amer. Flora 21(1): 86. 1916. TYPE LOCALITY: valley near Thorpe's Quartz Mill); near Ione, Beach 123 (NA-278619): about 2 mi. S. of Cloverdale, Goodner & Henning 734 (NA-71851); 7-32 mi. E. of Tonopah, Goodner & Henning 752 (NA-17846); 2 mi. NW. of Penelas Mill (15 mi. NW. of Ione), Beach 980 (NA-291889); STOREY CO.: about 5 mi. W. of Wadsworth, Mills & Beach 1093 (NA-290355); WASHOE CO.: vic. of Wadsworth and Pyramid Lake, June 26, 1893, V. Bailey (US); Wadsworth, Kennedy 917 (NES-2418); near Wadsworth, Archer 5536 (NA-71802); 2-7 mi. N. of Wadsworth, Archer 6196 (NA-71886); Long Valley, 15 mi. SE. of Vya, Train 2868 (NA-183598).

14. SUAEDA Forsk., Fl. Aegypt.-Arab. 69. 1775.

Syn.: Dondia Adans., Fam. Pl. 2: 261. 1763; Standl., N. Amer. Flora 21(1): 86. 1916.

Perennial or annual herbs, sometimes shrubby plants, more or less fleshy, with alternate, narrow, terete leaves; flowers perfect or polygamous, solitary or clustered in the upper axils, bracteate; sepals 5, keeled or narrowly winged at maturity; stamens 5, with short filaments; ovary 1-celled, rounded or flat on the top; styles often 2; utricle surrounded by the calyx; seeds horizontal or vertical; endosperm wanting or scant; embryo coiled in a flat spiral.

KEY TO SPECIES

1. Perianth lobes corniculately appendaged or transversely winged; annuals.
   2. Perianth lobes corniculately appendaged; leaves broadest at base, those of the inflorescences ovate to ovate-lanceolate. 1. S. DEPRESSA
   2. Perianth lobes transversely winged, the wings more or less lobed; leaves not broader at base, those of the inflorescences linear or linear-lanceolate.....2. S. OCCIDENTALIS
1. Perianth lobes neither appendaged nor winged.
   3. Stems and leaves more or less densely pubescent; leaves strongly flattened.....3. S. RAMOSISSIMA
   3. Stems and leaves glabrous or nearly so.
      4. Leaves conspicuously contracted toward the base, 7-25 mm. long, somewhat flattened, not crowded.....4. S. NIGRA
      4. Leaves not conspicuously contracted toward base.
         5. Leaves strongly flattened, 2-3 cm. long, acute or acuminate, the upper ones reduced; seed black, tuberculate.

5. S. TORREYANA

5. Leaves terete or nearly so, 10-15 mm. long or more, acute or obtuse, those of the inflorescence scarcely reduced; seed black, shining.....6. S. FRUTICOSA

1. SUAEDA DEPRESSA (Pursh) S. Wats., Bot. King's Expl. 294. 1871; Abrams, Ill. Fl. Pacific States, 2: 95. 1944. (Map 33)

Syn.: Salsola depressa Pursh, Fl. Amer. Sept. 197. 1814; Dondia depressa (Pursh) Britton, in Britton & Brown, Ill. Fl. 1: 585. 1896; Standl., N. Amer. Flora 21(1): 87. 1916.

Low, decumbent annual, branching at the base, glabrous, 2-10 dm. tall; leaves linear, semiterete, 0.7-3 cm. long, acute, usually broadest at the base, subulate; bracts 5-10 mm. long, rather crowded on the branchlets; flowers crowded, 1-5 in each axil, forming stout spikes; calyx cleft to the middle; seed about 1 mm. broad, slightly reticulate.

Range: Saline or alkaline soil. July-Oct. Saskatchewan and Montana to Kansas and Nevada.

Nevada: Churchill, Elko, Lander, Nye, Pershing and Washoe Cos.

Representative specimens: CHURCHILL CO.: Carson Sink region, Kennedy 1700 (NES-7849; US-506113); ELKO CO.: 2 mi. N. of Cave Creek, W. of Ruby Lake, Holmgren 1487 (NA-291641); LANDER CO.: Smoke Creek, Griffiths & Hunter 512 (US-505715 and 505746); NYE CO.: 1/4 mi. S. of Potts Ranger Station, N. end Monitor Valley, Train 4487 (NA-278887); PERSHING CO.: Upper Humboldt Valley, Sept. 1868, S. Watson 997 (US); WASHOE CO.: Spanish Springs, Kennedy 1946 (NES-13679; US-509641).

1a. SUAEDA DEPRESSA var. ERECTA S. Wats., Proc. Amer. Acad. 9: 90. 1874; Abrams, Ill. Fl. Pacific States, 2: 95. 1944.

Syn.: Dondia depressa var. erecta Heller, Cat. N. Amer. Pl. 3. 1898; D. erecta (S. Wats.) Nels., Bot. Gaz. 34: 364. 1902; Suaeda erecta Nels., in Coult. & Nels., Man. 169. 1909.

Erect annual; stems rather simple or with short erect branches, very leafy; leaves slender, 2-4 cm. long; bracts often more than 1 cm. long; calyx cleft below the middle; seeds smooth, nearly 1.5 mm. broad; otherwise similar to S. depressa.

Range: Alkaline or saline flats. July-Sept. Saskatchewan and Montana to Colorado and Nevada.

Nevada: WASHOE CO.: 0.9 mi. WSW. of Spanish Springs, Aug. 16, 1938, Hendrix 876 (NA-79564).

2. SUAEDA OCCIDENTALIS S. Wats., Proc. Amer. Acad. 9: 90. 1870; Standl., N. Amer. Flora 21(1): 88. 1916. (Map 32)

Syn.: Dondia occidentalis (S. Wats.) Heller, Cat. N. Amer. Pl., 3. 1898.

Erect or spreading annual; stem up to 3.5 dm. tall, with flexuose, ascending or spreading branches; leaves linear, narrowed at the base, 1-2.5 cm. long and 1 mm. wide; bracts similar but slightly shorter; flowers in spikes, 1-3 in each axil, not crowded; seeds smooth, black and shining, horizontal.

Range: Dry, alkaline soils. July-Sept. E. Washington and Oregon to SW. Wyoming, Colorado and N. Nevada. Nevada-TYPE loc., Ruby Valley, Elko Co.

Nevada: Douglas, Elko, Lander, Lincoln, Nye, Pershing and Washoe Cos.

Representative specimens: DOUGLAS CO.: 5 mi. W. of Minden, Archer 5876 (NA-71696); ELKO CO.: Ruby Valley, TYPE: Ruby Valley near Cave Creek P.O., Heller 9487 (US-612362); Gardner Ranch, Ruby Valley, 4 mi. N. of Harrison Pass, Train 934 (NA-71743); LANDER CO.: 3-18 mi. N. of Austin, Goodner & Henning 873 (NA-71694); LINCOLN CO.: Pahranagat Valley, LaRivers & Hancock 753 (NA-71705); NYE CO.: Indian Camp near Beatty, Murphey 652 (NA-226198 and 71908); PERSHING CO.: Lovelock, Train 52 (US-1419819); WASHOE CO.: near Pyramid Lake, Tidestrom 10676 (US-1117568); Glendale, Kennedy 1952 (US-509646).

3. SUAEDA REMOSISSIMA (Standl.) Johnston, Proc. Calif. Acad. IV. 12: 1017. 1924. (Map 36)

Syn.: Suaeda suffrutescens Wats., Bot. Calif. 2: 59, in part. 1880 (not 1874); Dondia ramosissima Standl., N. Amer. Flora 21 (1): 91. 1916; Suaeda torreyana var. ramosissima Munz, Man. S. Calif. 144. 1935.

Erect perennial, much branched, green, woody at the base, 1 m. high or less, densely and very finely pubescent throughout, the branches very slender, much elongate, spreading or more rarely ascending, flexuous or geniculate; leaves strongly flattened, 5-20 mm. long, linear, mostly acute or acuminate, or the upper ones obtuse, narrowed at the base, not crowded, those of the inflorescence much reduced; flowers 1.5-2 mm. broad, globose or depressed-globose, 1-4 in each axil, in very slender spikes, the glomerules distant; bractlets acute; calyx deeply cleft, the lobes obtuse or acute, rounded on the back; seed vertical or horizontal, 1 mm. broad, reddish-brown or black.

Range: Alkaline plains. May-Nov. W. Arizona and Nevada to SE. California and Lower California.

Nevada: Clark, Elko, and Washoe Cos.

Representative specimens: CLARK CO.: St. Thomas, Train 1910 (NA-94743); Riverside, Winters 1535 (NA-81348); Boulder Canyon Refuge, Overton, N.Hotchkiss & R.E.Towle 6406 (NA-97662); ELKO CO.: Wendover, Train 3819 (NA-278853); WASHOE CO.: near Pyramid Lake, Tidestrom 10680 (US-1117569, labeled S. suffrutescens).

4. SUAEDA NIGRA (Raf.) J.F.Macbride, Contr. Gray Herb. II. No. 56: 50. 1918. (Map 35)

Syn.: Chenopodium nigrum Raf., Atl. Journ. 146. 1832; Suaeda diffusa S. Wats., Proc. Amer. Acad. 9: 88. 1874; Dondia diffusa Heller, Cat. N. Amer. Pl., p. 3. 1898; D. nigra Standl., N. Amer. Flora 21(1): 89. 1916.

Erect or ascending annual; stem diffusely branched, 2-5 dm. tall; the branches ascending or spreading, slender and flexuose; leaves linear, filiform, 1-3 cm. long, somewhat flattened, otherwise terete; bracts similar, but much shorter, usually less than 1 cm. long; calyx cleft just below the middle, fleshy, the lobes obtuse or acutish, rounded on the back; seeds vertical usually, 1 mm. broad, smooth, black.

Range: Sage plains and alkaline soils. June-Oct. Wyoming to Oregon S. to N. Mexico, New Mexico and Arizona.

Nevada: Churchill, Humboldt, Lander, Nye and Washoe Cos.

Representative specimens: CHURCHILL CO.: Sand Springs Salt Flats, 12 mi. E. of Fallon, Train 1264 (NA-71967); Fallon, Tidestrom 10741 (US-1117580); Carson Lake, Tidestrom 10784 (US-1117585); HUMBOLDT CO.: Paradise Hill, Griffiths & Morris 110 (NA-41609); Wheeler Ranch, 21 mi. S. of Soldier Meadows, Train 3094 (NA-183574); LANDER CO.: Battle Mt., A.E.Hitchcock 575 (US-692910) and Hitchcock 649 (US-692930); NYE CO.: Indian Camp, near Beatty, Murphey 691 (NA-71900); WASHOE CO.: Truckee Pass, E. of Reno, Heller 8650 (US-611903); Reno, July 1894, Hillman (NES-2395). Other Nevada specimens are: "Nevada", Lt. Wheeler, 1872 (US); near Boat Corral, NW. Nevada, July 28, 1896, Coville & Leiberg 78 (US-276387); 4 mi.

E. of Glendale (Clark or Washoe Co.), June 25, 1932, E.W.Davis (NA-92035).

5. SUAEDA TORREYANA S. Wats., Proc. Amer. Acad. 9: 88. 1874.

(Map 36)

Syn.: Chenopodium linearis Torr. in Stansb. Expl. Utah 394. 1853 (not C. linearis Moq., 1849); Suaeda fruticosa S. Wats., Bot. King's Expl. 294. 1871 (not S. fruticosa Forsk., 1775); Dondia torreyana Standl., N. Amer. Flora 21(1): 90. 1916.

Erect perennial, mostly glabrous, woody at the base; herbaceous branches usually slender, ascending, sparsely leafy, 6-10 dm. tall; leaves subterete, filiform, 2-3 cm. long, rarely up to 4 cm. long, acute, those of the inflorescence much reduced; flowers 1-5 in each axil, the branches of the inflorescence slender but not flexuous; calyx deeply cleft, green, the lobes obtuse, rounded on the back; seeds vertical or horizontal, 1-1.5 mm. broad, black, minutely tuberculate.

Range: Salt marshes and alkaline soils. Apr.-Oct. Wyoming and California S. through Nevada to Texas and New Mexico.

Nevada: Churchill, Clark, Humboldt, Mineral, Nye and Washoe Cos.

Representative specimens: CHURCHILL CO.: Carson Sink region, Oct. 1906, Kennedy 1675 (US-506105); Oct. 1907, Kennedy 1695 (NES-136 and 137); CLARK CO.: Glendale, April 20, 1939, Winters 1597 (NA-81364); HUMBOLDT CO.: Sod House, Quinn River Valley, Train 128 (NA-71730); Quinn River Valley, Train 157 (NA-71722); N. arm of Black Rock Desert, 25 mi. NE. of Gerlach, Train 3095 (NA-183928); Black Rock Desert, Griffiths & Hunter 516 (US-505718); near Cane Springs, Train 88 (US-1698097); MINERAL CO.: Sodaville, Katherine Brandegee (US-1466976); Sodaville, Tidestrom 10059 (US-1117327); NYE CO.: Amargosa River, Monnet 1007 (US-509992); WASHOE CO.: Glendale, Kennedy 1575 (NES-7608; US-506070); S. end of Pyramid Lake, Nixon, Train 2605 (NA-92743 and 154012); 23 mi. E. of Reno, Archer 6232 (NA-94744); Sparks, A.E.Hitchcock 429 (US-692905).

6. SUAEDA FRUTICOSA (L.) Forsk., Fl. Aegypt-Arab. 70. 1775.(Map 34)

Syn.: Chenopodium fruticosum L., Sp. Pl. 221. 1753; Suaeda intermedia S. Wats., Proc. Amer. Acad. 14: 296. 1879: Dondia intermedia (S. Wats.) Heller, Cat. N. Amer. Pl. 3. 1898; D. fruticosa (L.) Druce, List. Brit. Pl. 60. 1908; Standl., N. Amer. Flora 21(1): 90. 1916; Suaeda moquini Greene, Pittonia 1: 264 (hyponym). 1889; Nelson, in Coulter & Nels., Man. 170. 1909.

Erect or ascending perennial, glaucous, nearly or quite glabrous, fruticose at the base, 2-8 dm. tall, much-branched, the branches slender or stout, ascending, rather densely leafy; leaves 1-1.5 or rarely 3 cm. long, nearly terete, acute or obtuse, those of the inflorescence usually little reduced; flowers 1-5 in each axil, the branches of the inflorescence mostly stout and straight; calyx deeply cleft, glaucous, the lobes obtuse or acute, rounded on the back; seeds mostly horizontal, 0.8 mm. broad, black and shining.

Range: Alkaline soils. May-Sept. Alberta to S. California and N. Mexico; Bahamas and Cuba; also in Europe, Asia and Africa.

Nevada: Churchill, Clark, Esmeralda, Eureka, Lincoln, Lyon and Pershing Cos.

Representative specimens: CHURCHILL CO.: Stillwater, Tidestrom 10811 (NA-83965); CLARK CO.: 3 mi. E. of Las Vegas, G.W.Gullion 473 (NA-302504); ESMERALDA CO.: NE. branch of Fish Lake Valley, near Gap Spring, Archer 7243 (NA-92744 and 154013); EUREKA CO.: Devil's Gate, 10 mi. W. of Eureka, Train 465 (US-1836819); LINCOLN CO.: 5 mi. S. of Crystal Springs on Alamo road, Train 2412 (NA-94745); LYON CO.: N. of Wabuska, Koch, Holstein and Carlson N-89 (NA-75431); PERSHING CO.: Lovelock road to Fernley, Lehenbauer (NA-44667, as S. moquinii Greene).

15. SALSOLA L., Sp. Pl. 222. 1753.

Annuals, usually hispidulous, densely branched herb; leaves linear, pungent, alternate; flowers perfect, small, axillary, subtended by two branchlets in addition to the leaf, perianth 5-parted, becoming strongly horizontally winged in fruit; stamens 5; stigmas 2, subulate; utricle included in fruiting perianth, pericarp free from seed, seed black, shining.

1. SALSOLA KALI L. var. TENUIFOLIA Tausch, Flora 11: 326. 1828; Davis, Flora of Idaho, 268. 1952. (Map 3)

"russian thistle"

Syn.: Salsola pestifer A. Nels., in Coult. & Nels., Man. Bot. Rocky Mts., 169. 1909; Rydb., Flora Rocky Mts., 2nd. ed., 252. 1922 (1954 ed.); Standl., N. Amer. Flora 21(1): 93. 1916.

Rounded herb, detaching at base when mature, making a 'tumbleweed'; stems conspicuously green and purple striped; leaves almost terete, up to 6 cm. long, usually less; leaves and bracts unpleasantly prickly. Quite variable in most of its parts.

Common along roadsides and in cultivated fields; a serious introduced weed. July-Oct.

Nevada: Churchill, Clark, Eureka, Lander, Lincoln, Lyon, Mineral, Nye, Ormsby, Pershing, Washoe and White Pine Cos.

Representative specimens: CHURCHILL CO.: vic. of East Gate, R.A.Allen 342 (NA-71964); 13 mi. SE. Fallon, Allen 413 (NA-71865); 3 mi. S. of Toy, Allen 452 (NA-71737); CLARK CO.: Las Vegas Valley, 4 mi. SE. Las Vegas, Gullion 312 (NA-302505); Harris Spring, 9 mi. ESE. of Charleston Peak, Spring Mts., LaRivers & Hancock 594 (NA-71887); EUREKA CO.: 5-15 mi. W. of Eureka, Goodner & Henning 818 (NA-71877); LANDER CO.: within 6 mi. of Cortez, Goodner & Henning

952 (NA-71886); LINCOLN CO.: 3 mi. N. of Caliente, LaRivers & Hancock 650 (NA-71878); LYON CO.: W. of Yerington along road, Vanderwal 253 (NA-236894); MINERAL CO.: mouth of Cottonwood Canyon, W.H. Henning 315 (NA-71844); NYE CO.: 7-23 mi. E. of Tonopah, Goodner & Henning 750 (NA-291088); 4 mi. W. of Round Mt., Henning 156 (NA-71840); Golden Eagle Mill Foundation, 15 mi. NW. of Ione, Beach 1030 (NA-290299); ORMSBY CO.: Stewart, Archer 5871 (NA-71853); PERSHING CO.: Lovelock Valley, Train 49 (NA-71867); WASHOE CO.: Wadsworth, Kennedy 920 (NES-2433); vic. of Reno, Sparks, A.E.Hitchcock 433 (US-692906); E. edge of Reno, Archer 5717 (NA-71791); Charles Sheldon Game Refuge, Greenway 50 (NA-79627); WHITE PINE CO.: Bird Creek, Shell Creek Range, Train 1198 (NA-71776).

16. HALOGETON C.A.Meyer, in Ledeb., Fl. Atl. 1: 378. 1829.

Represented with us by a single weed.

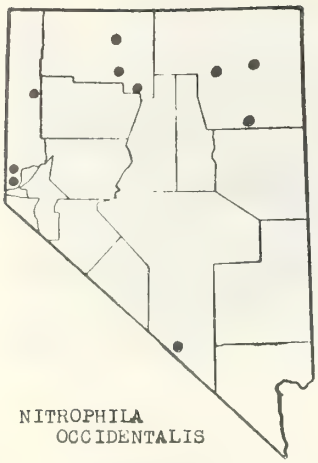
1. HALOGETON GLOMERATUS (M. Bieb.) C.A.Meyer, in Ledeb., Fl. Atl. 1: 378. 1829; Harrington, Man. Pl. Colo., p. 209. 1954.(Map 7)

Annual herb, much-branched, from a few cm. to a meter in diameter; leaves sessile, 1-2 cm. long, fleshy, cylindrical to slightly angled, tipped with a bristle-like hair, leaf-axils with a tuft of whitish hairs; flowers inconspicuous, of two forms; the sepals of some flowers membranous, enclosing the seed by their claws and the blade spreading and fan-like with prominent veins, the sepals of others, coriaceous with their tips reduced to toothlike appendages; inflorescences axillary clusters, several-flowered; stamens 5; stigmas 2; seeds flattened, with a coiled embryo.

A weedy plant spreading in Nevada. Poisonous to sheep especially, caused by large quantities of soluble oxalates (up to 10% dry weight) found in the tissues. Seeds stick to sheep wool and hoofs. Dry saline places. July-Sept.

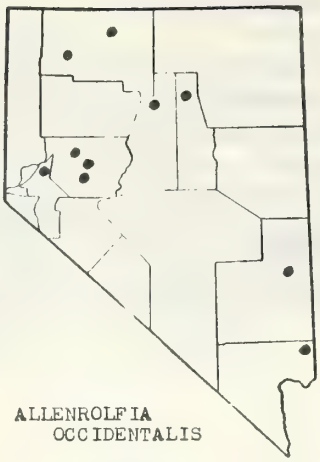
Nevada: Elko. Nye and Pershing Cos.

Representative specimens: ELKO CO.: 10 mi. N. of Deeth, on Jarbridge Road, Train 557 (NA-94794); junction of Ruby Valley-Ely highway at Warm Springs Ranch, Warm Springs Valley, Train 960 (NA-71863); near Humboldt, 1 mi. E. of Quilici Ranch, Robertson 163 (NA-250082); about 30 mi. S. of Contact, Piemeisel 41-25 (NA-257550; NA-257549); near Elko. Robertson (RENO-15047); NYE CO.: along Nevada highway 8A, 3 mi. S. of Nye-Lander Co. Line in Smokey Valley, Gullion 407 (NA-302516); PERSHING CO.: near Lovelock, Robertson (RENO 15046).



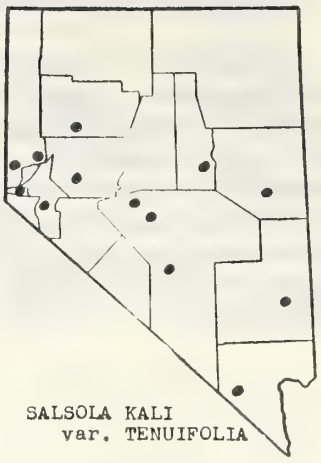
NITROPHILA OCCIDENTALIS

Map 1



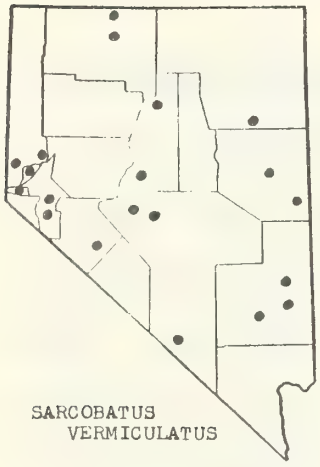
ALLENROLFIA OCCIDENTALIS

Map 2



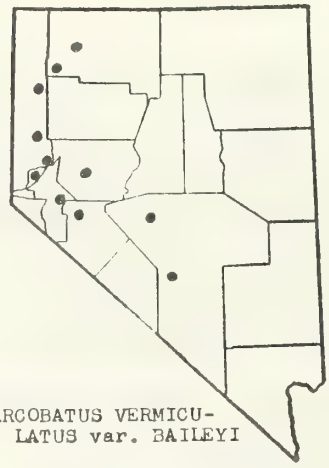
SALSOLA KALI var. TENUIFOLIA

Map 3



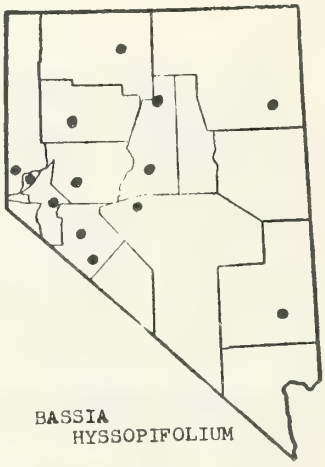
SARCOBATUS VERMICULATUS

Map 4



SARCOBATUS VERMICULATUS var. BAILEYI

Map 5



BASSIA HYSSOPIFOLIUM

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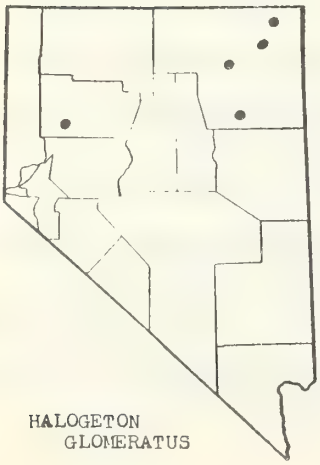
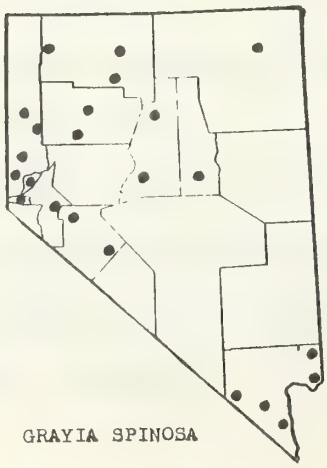


HALOGETON GLOMERATUS

Map 7



GRAYIA SPINOSA

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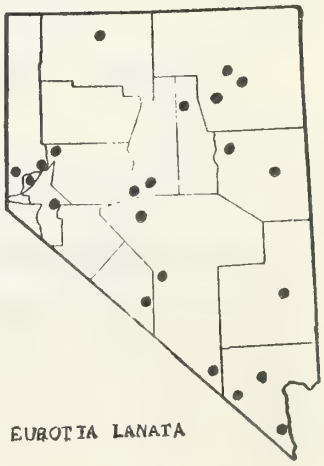
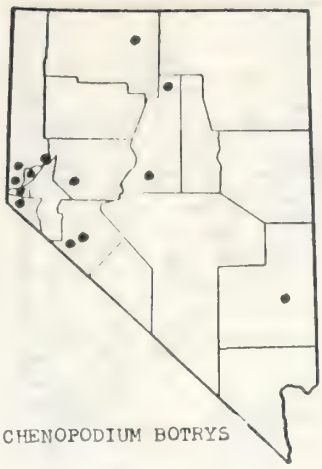


EUROTIA LANATA

Map 9

Map 10



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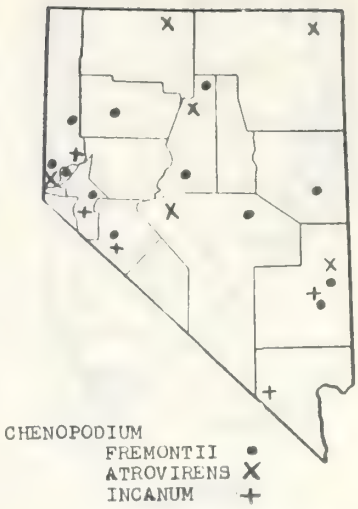

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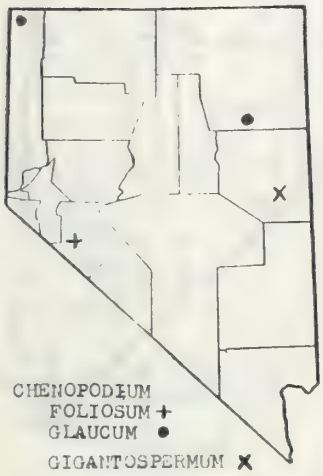

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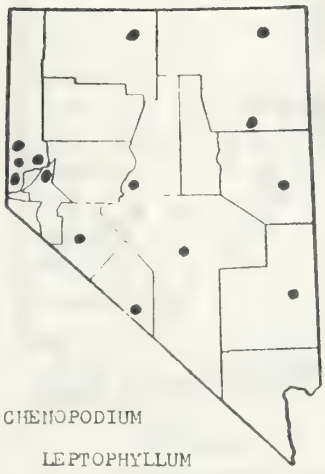

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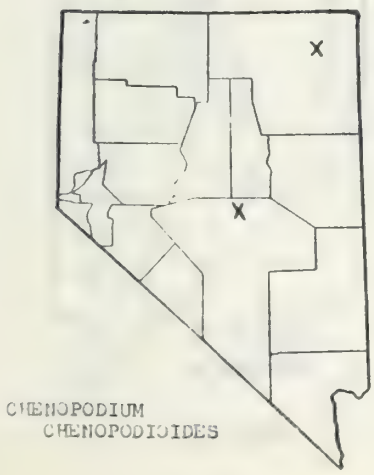

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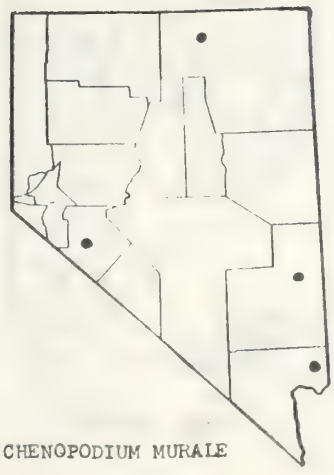

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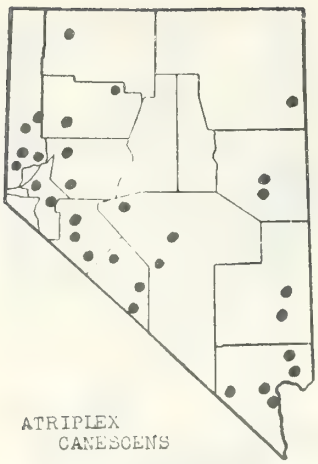

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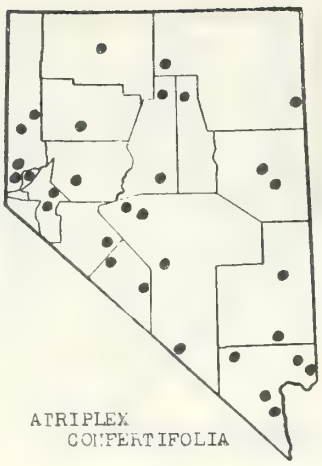

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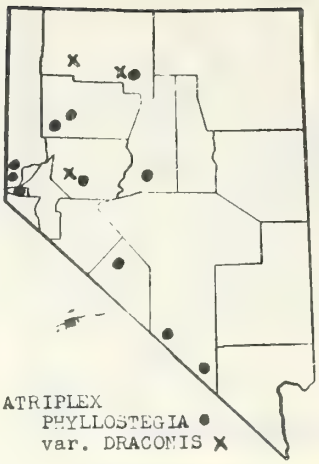

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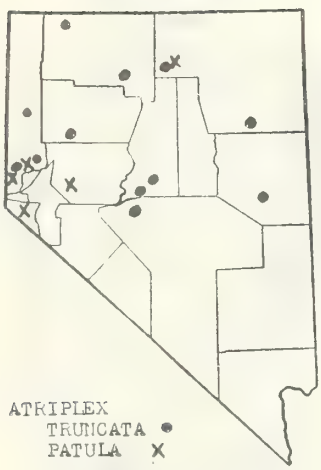

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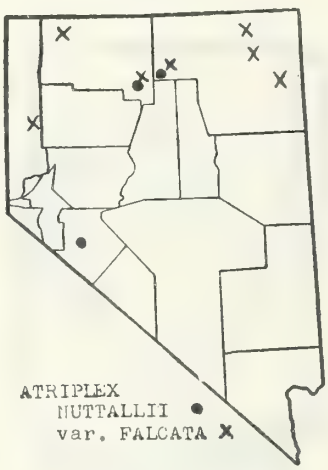

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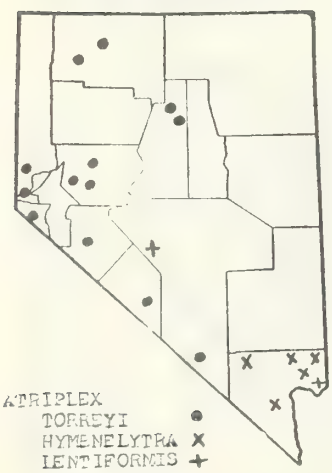

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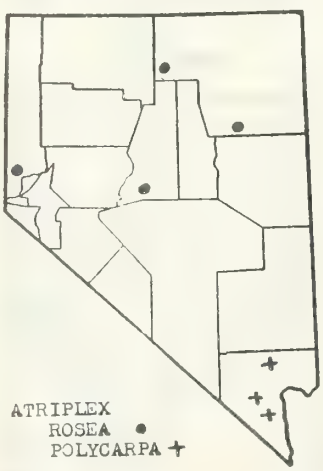

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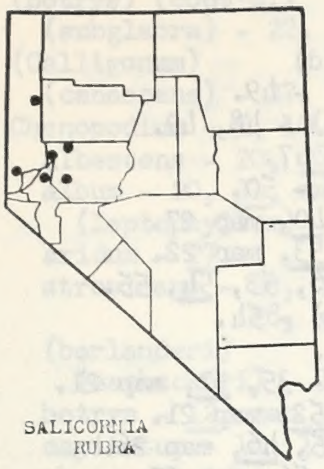

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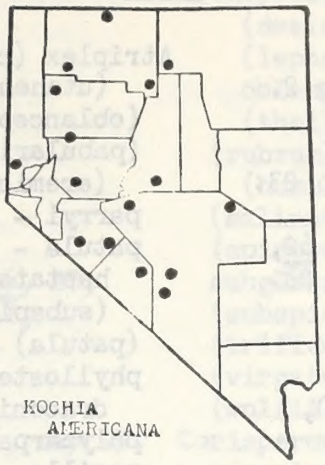

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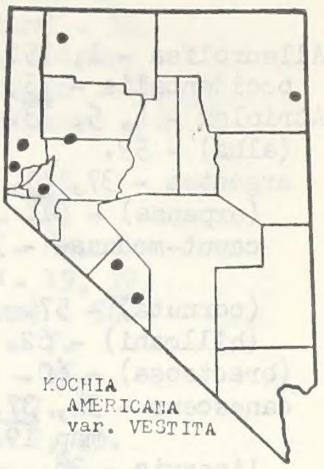

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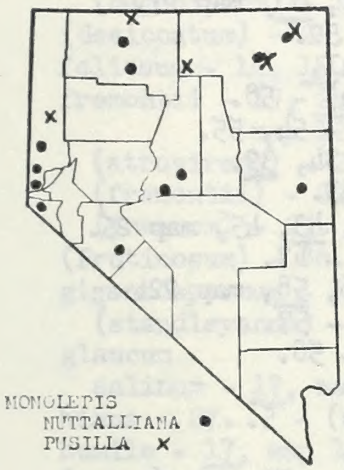

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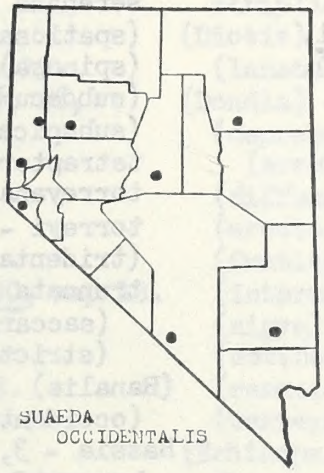

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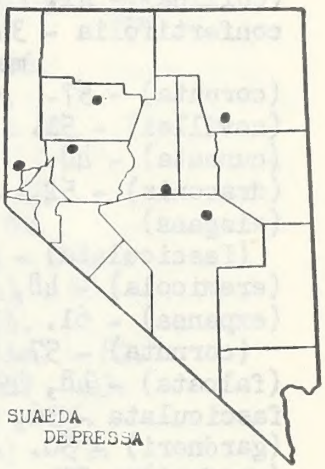

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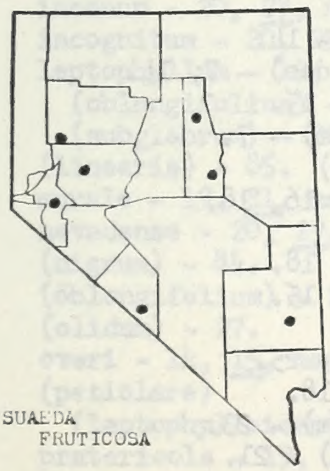

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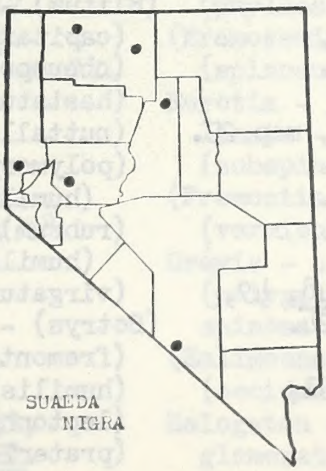

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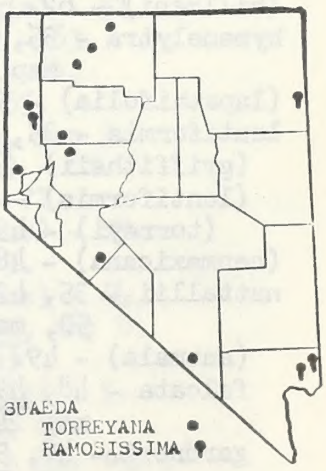

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